

# Overcoming conversion problems

WHEN a site converts from one machine to that of another manufacturer the process can be a disconcerting, almost traumatic, experience for the operations staff.

After years of working with a well-tried and trusted system, they are suddenly confronted by new hardware and software, and all the jargon and terminology associated with the new machine.

Add to this the fact that DP management often considers the conversion process to be a purely systems and programming matter, and it becomes clear that the operators are faced with a very difficult situation.

Now to experienced operators the change in hardware will not present much of a problem, but the new operating system with its different concepts and facilities will call for greater effort and study on their part.

They must insist on being sent on a basic appreciation course, followed closely by one more advanced in content, well before the new machine is actually installed.

After this the operators must take matters into their own hands and make an effort to get in touch with the appropriate user groups.

These groups are very useful as most maintain a so-called skills register, in which the experience of all the members is pooled.

Many allow first-time users to join their ranks before the machine is actually installed, so that the new members get a full run-down on the problems they are likely to encounter.

Some, such as the Operations Group of the IBM Computer Users' Association, help the operations staff to get acquainted with the new system. Sometimes staff are taken to other sites where they receive a thorough training.

Back at their own site, the operations staff must persuade the management to give them a say in how the conversion programme is planned and executed.

They must insist that at least two of the operators are used in the conversion team in order to work closely with the systems and programming staff.

Those operators would be responsible for the scheduling of all the testing work and helping to produce documentation of a sufficiently high level. They would, of course, keep the rest of the operators up-to-date about all new developments.

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By Bernard Allen

## HINT OF THE WEEK

### Beware hardware errors

THIS week's hint points to the need for operators to be alert to hardware problems. Hardware errors which occur on disc drives can be serious and expensive both in terms of lost machine time and money costs. If a drive has damaged read/write heads, any disc placed upon the unit will be made defective.

Should that disc then be mounted on another disc drive, that also will be ruined, and so on. Discs. So in the case of hardware errors on disc drives, the operators must be sure to inform an engineer or the operations manager. In this way any serious problems may be avoided.

### That £5 offer still stands

IT seems to me that most operations staff must get a pretty good salary because a couple of weeks ago I offered £5 to anyone who has a hint published in Op Spot. And as yet nobody has taken me up on it.

The offer still stands. The hints may be technical or non-technical in content, but please be sure to state your name and that of your company clearly, giving a telephone number on which you may be contacted during the day.

## NatWest night-shift transport not good enough, says NUBE

TALKS are taking place between the National Union of Bank Employees and the National Westminster Bank on two matters concerning operations staff: safety and the calculation of shift allowance.

Concerned for the safety of its members working at the bank's centre in Leaden Street, London E1, the union continues to press for the provision of transport to take staff home at the end of evening and night shifts (Op Spot, March 16).

Already the bank is providing the facility for its Asian staff who were transferred to the centre from the bank's Woolgate House site.

Now the union understands that the bank intends to provide a modified version of the service for all its other shift workers at the site; they will be taken from the centre to a fixed point outside the immediate area.

The union points out that such a service would be of use only in relation to the evening shift and would be no help to staff in the case of the night shift finishing early. It calls for flexibility by the bank.

On shift allowance, the union wants the implementation of a points system by which the allowance is calculated in accordance with the social hours worked by staff. The bank has agreed in principle.

OPERATIONS training specialist Infotech Operations Ltd has published a booklet which outlines the courses they run for operators and operations management. The Operations Training booklet July-December 1978 is available, free of charge, from John Blake, Infotech Operations Ltd, Nicholson House, Maidenhead, Berks. Tel: Maidenhead (0628) 35031.



The Kim 1 microcomputer and the Pocket Terminal, with a television set being used for display and a cassette recorder for back-up storage.

## Commodore extends Kim's range

HARDWARE additions have been announced for the Kim 1 single-board microcomputer, providing it with a television interface, extended memory and a full keyboard. The Kim 1 is made by Commodore, is based on a MOS Technology 8002 processor chip and costs £177 including power supply.

The keyboard, called the

Rocket Terminal, is a standard ASCII teletype replacement terminal in the shape of a calculator with 40 dual-purpose alphanumeric keys and an 8-character LED display. It can plug into the Kim as an adjunct to the headless key-pad and costs £240.

The video board allows a domestic television set to be used as a display and costs £150.

The memory plus board costs £198 and provides an extra 8K bytes of RAM. Various software packages are also available for the Kim 1, including an editor and assembler called Micro-Ada, an information retrieval package, a mailing list program and a chess playing program. Most of these cost £12.

A mailing agreement with Post Gas Australia covers Australia, India and the Far East, while Spain and Israel covers the US and South America.

## Hornby puts models on micro rails

IN a move that could herald the greatest change in electric model railways since two-rail power pick-up was introduced, Hornby Hobbies are planning to launch a microprocessor-based control system.

Named Zero-1, it is based on a 4-bit chip that was developed specially for the application and the system is due for release in mid-1979.

The basic controller will control the movement of up to 16 locomotives and up to 40 electrically-operated points or signals with only two wires. A 20 volts AC output has been chosen in preference to the standard 12 volts DC, as the AC mode gives better current collection.

The secret of Zero-1 is that power control takes place in the locomotive, not at the rails. Each locomotive will carry a chip placed between the pick-up and the motor. The chip not only converts the AC current back to 12 volts DC but also acts as a speed and direction controller.

Each chip has a user-assigned call sign and up to 18 codes can be used to control locomotives, points, etc. Constant train lighting is also provided even when the train is at a standstill.

Additional slave units can be added at £10 each. Chips are expected to cost about £5 and the main controller £30.

Most shops that Computer Weekly spoke to thought the Zero-1 a good idea but, as with most products from the Hornby Hobbies stable, they would prefer to "wait and see" before passing judgment.

The maximum configuration specified for a single controller would cost about £130. However, one model shop proprietor, Bob Wyatt of Wyatt and Tizard, Greet, Birmingham, said that a traditional system for the same configuration could be supplied for about £30.

Wyatt added that three locos were the most that any child was likely to own, so there was the question of costs to the customer. He was certain that serious modellers and model

## MICRO NEWS

railway clubs would be interested, but they were numerically very much in the minority.

Hornby Hobbies brand manager, Jim Kedge, said that using Zero-1 would mean a saving in cost of labour and wiring on a traditional system. This would make Zero-1 about the same price but it would be much more for the lay-out.

Zero-1 is to be demonstrated at the Festival of Model Railways Exhibition, August 24 to September 2, at the Central Hall, Westminster.

## Low-cost TV games from GIM

LOW-COST cartridge programmable TV games are being made up for the Christmas market by OEM buyers of General Instrument Microelectronics Systems 8801 chip set.

Consoles are based on the AY-3-8015 interface chip, which needs only a clock crystal, ROM, modulator and power supply to put games on to a colour TV screen. The chip handles all push-button selector and joystick control signals to the games cartridge. It sells for £2.75.

Each cartridge contains a single games processor chip, which is wired to a robust edge connector. Chips contain up to 24 games and the series includes a motor-cycle set and a road race set.

Further sets of games are currently going to OEMs in sample quantities and should be in full production within the next two months. These are the 8800 Warfare chip with 10 games, the 8800 Wipeout with 24 games and the 8807 Target with 12 games. Prices are around £8 to £8 in 100-up quantities.

## For checking cables

AUTOMATIC monitoring systems for air-pressure cables, telecommunications cables, to be marketed by Dralim. The telecommunications cables can check up to 2,250 transducers for sensing air pressure and flow rates to ensure that moisture does not penetrate and harm circuits.

The series 5300 monitors are based on Intel 8080 microprocessors and will be marketed in Western Europe, Central and East Africa, the Gulf States and the Caribbean under an exclusive agreement with the US manufacturer, Spartan Southwest.

Dralim produces specialist cable protection equipment and counts the Post Office and British Rail among its customers. It recently lost £2 million to a £200,000 order from the Indian government.

A mailing agreement with Post Gas Australia covers Australia, India and the Far East, while Spain and Israel covers the US and South America.

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## INTERNATIONAL BRIEFING

### Canada turns to graduates

A SURVEY of professional job vacancies in Canada has shown that experienced systems analysts and programmers are the most sought-after staff there. The total number of professional vacancies increased in the second quarter of 1978 over the first in Ontario (7.9% increase) and Quebec (9.5%) but not in other provinces.

The survey said government incentives to encourage research and development appeared to have had little effect on professional vacancies. Shortage of some staff had forced employers to hire new graduates instead of experienced men and women.

### BABS extended

TO pick up more passenger business in the Middle East, British Airways is extending its BABS online reservation system to the Gulf States. The airline is installing a total of 41 display terminals and 15 printers in sales offices and airports in Bahrain, Dubai, Abu Dhabi, Doha and Kuwait at a total cost of £195,800.

### Insurance deal

UNDER a contract worth about \$10 million Computer Automation is supplying Continental Insurance offices all over the US with its Syfa business system. This deal follows a \$5 million contract signed about 18 months ago with another US insurance firm, Fireman's Fund American Insurance, a subsidiary of American Express, which involved about 50 Syfa systems (CWI, January 13, 1977).

### Extended by 45

THE Belgian airline, Sabena, has extended its passenger and hotel reservation system, Saphir, to 45 leading travel agencies in London. They are now linked to Air France's Univac system in Paris on which Saphir runs, via Travicom, the system that enables agents to access the reservation systems of most major airlines.

### Travel link

FIBRE optics systems manufacturer, Spectronics Inc. of Richardson, Texas, is being taken over by Honeywell. The acquisition has been approved by the boards of directors of both companies and is expected to be completed in late August. Spectronics is not linked in any way with the UK firm, Spectronics of Poole, Dorset, which builds portable telex devices.

### Quarterly results

IN the financial results for the first quarter, ended June 30, of the current financial year, Computer Sciences Corp. has reported net profits of \$3,859,000 or 23¢ per share compared with the same period last year.

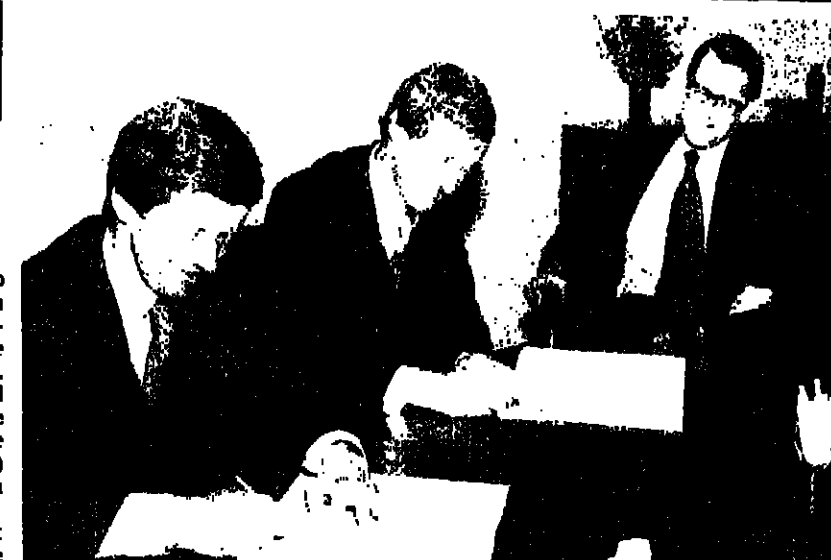
### Support centre

HARDWARE, software, training, engineering and training support for the European subsidiaries and distributors of terminal manufacturer Harris Data Communications is being provided by a European support centre set up in the UK.

# COMPUTER WEEKLY International

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THURSDAY, AUGUST 3, 1978



## First two ICL 2950s in Holland

THE first two ICL 2950 mid-range mainframes in Holland are to go to a big department store and to a mail order company, Ter Meulen BV of Rotterdam. Ter Meulen already has 42 terminals attached to two ICL 1803As, and the new machines are to take over the online mail order processing handled by the 1803As, and development of a new stock control system which will enable it to reduce stock levels of the 70,000 items in its catalogue. It mails catalogues to its 1.5 million customers 17 times a year, and maintains the address list on the system.

The machines, each with one Megabyte of main memory, will be installed in the middle of next year, and are worth £750,000 altogether.

ICL managing director Dr Chris Wilson is pictured looking at the contracts are signed by Dr F. H. B. Ter Meulen (centre), director of Ter Meulen, and Dr J. S. Eilbroek, general manager of ICL Holland.

## International services policy body to be set up

TO provide a worldwide forum for communications between computer services companies and governments, an international policy committee is being set up by the European Computing Services Association, the Japanese Software Industry Association, and the US Adapa.

Announcing this, Adapco vice-president Jerome Dreyer said, "This committee will offer the platform for confronting such issues as transnational data flow, privacy and security, and business competition."

Dreyer added that following the success of the first World Computing Services Congress in Barcelona (CWI, July 8) a second congress is planned for 1980 or 1981.

## CII-HB falls behind ICL

LATEST turnover figures from CII-Honeywell Bull indicate that the Franco-American company has just been overtaken by ICL of Britain in volume of business done.

In the half-year to June 30, 1978, CII-Honeywell Bull had turnover of 1,849 million French francs, about £219 million, whereas in the half-year to March 31, ICL's turnover was £282 million (CWI, June 1). Turnover was up 12% over the same period last year; ICL by comparison registered growth of 23%.

CII-HB's turnover benefited from a 137.5 million francs subvention from the French government in the period, almost halved from the 235.4 million francs it was granted in the first half of 1977. Like ICL, CII-HB did 51% of its business outside its domestic market. Profits after tax for the period were 71% up at 71.8 million francs.

Lyet also questioned President Carter's statement that the proposed sale represented a "quantum jump" in processing power for the Soviet Union, pointing out that the proposed machine, a low-end 1100, was comparable in power to the 1108-II already approved and installed with Aeroflot for international passenger reservations.

Although there is little question that the licence was denied

## Two word processor manufacturers to merge

TWO major international makers of word processors, Wordplex and AES, are to merge in an operation that involves both being bought by the Canada Development Corp, the Canadian equivalent of the NEB.

Both companies have roots in Canada. AES has always been based there and Wordplex is owned by the Toronto venture capital company, Venturetek. The new operation, to be called AES Wordplex, will have an integrated sales force, while keeping the two existing product lines.

Wordplex makes a compatible range of stand-alone and shared-logic machines, while AES makes only stand-alone screen-based units fairly low-

cost, but with many sophisticated features and options such as OCR input.

Harry Mallinson, managing director of Wordplex in the UK and managing director-elect of the joint UK company, feels the two ranges of stand-alones are compatible because some customers are interested in future upgrading to shared-logic while others are not.

Both product lines will be sold in the US by Lanier, which is principally a distorting machine concern but has been handling AES, Dennison, which currently markets Wordplex in the US, is pulling out altogether. In Canada, the existing AES sales force will sell both lines.

The Canada Development Corp was started with government funds but is now selling off its shares completely to the public. It is paying \$35 million for the two companies, plus additional payments of up to \$25 million, based on performance.

The joint company should become a powerful force in the intensely competitive field of word processing. Most of the firms at the moment are having difficulty making ends meet. It is only recently that a UK firm, Dataplex, went bankrupt (CWI, June 8).

Wordplex, over the past two years, has been having discussions with more than one com-

pany over possible mergers. Both Wordplex and AES have been eyeing each other for some time.

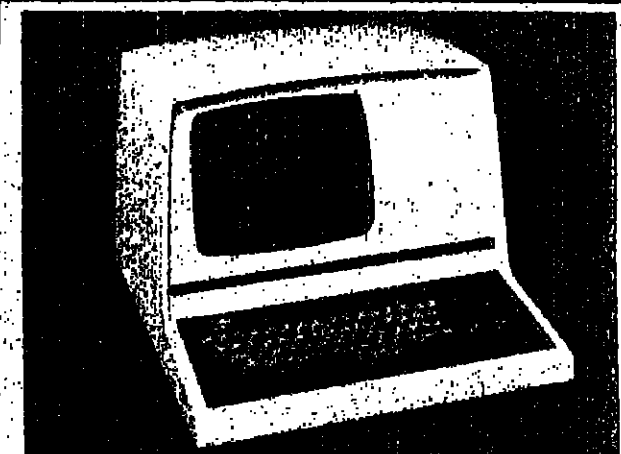
Mallinson sees AES Wordplex in a good position to fend off the assaults of giants, such as IBM and Xerox, when they eventually start to move into advanced word processing in a big way. Their installed bases of hard copy machines are big inhibitors, he feels, and with the time it takes to get into marketing

word processors, AES Wordplex's head start should be a considerable advantage.

The combined firm will have five factories where the hardware for the systems is assembled, four in Canada and one (Wordplex) in California. It claims to have 9,000 WP screens installed worldwide at present, of which 5,000 are AES stand-alone units. Turnover for this year is expected to be \$70 million.

## Australian hospitals system

SIX Australian hospitals are developing a patient reporting system for pathology departments based on Data General Nova and software originated by Monash University, Victoria. The results of tests from the biochemical and haematological laboratories are fed into the system on VDUs and cumulative reports on each patient are printed, together with ward reports. Hospital officials say that clerical work and the volume of paper records have been greatly reduced. Eventually, a total laboratory system will include results of all tests.



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## Corporate forts in the posh district

NEW YORK'S upper Madison Avenue has always been a posh neighbourhood, lined with small expensive shops and the offices of impressive corporations. IBM, for example, has held forth on the south-west corner of Madison and 57th Street for many years.

Now, however, IBM is demolishing its ageing edifice, an uninspired building equipped with a street-level exhibition area, and building a 603-foot skyscraper.

Not to be outdone, American Telephone and Telegraph has assembled a lot just one block away, at Madison and 50th Street, on which will rise its own castle, 648 feet high.

The IBM building, seen from the top, will be a square tower with a large corner lopped off. In a style typical of recent New York construction, the building will rise to a flat top. At the street level the rectangular lot will be covered with a glass-enclosed garden, likely to serve as a significant public facility.

Unlike IBM, AT&T's structure is reportedly ornate, with gothic arches at the base and a shaped

NEWS FROM AMERICA  
BY  
HESH WIENER  
AND  
CAMERON DAVIS

## IBM 'decline' impresses Wall St

WALL Street is always something of an enigma. Often it is difficult to separate insight from superstition, or brilliance from dumb luck. Take IBM's quarterly report, for example. It impressed analysts who had expected very poor results, but was an unimpressive showing for the computer giant.

The company said its profits climbed five per cent. But taking account of inflation, this represents a decline. Yet its shares rose by 8½ points in trading after the figures were released. The reason for the rally was the expectation that IBM's earnings would show a numerical decline from the second quarter of last year. The market

had discounted IBM's share value below what was considered a fair market price. It is also widely believed that this quarter marks the end of slow growth for IBM as 303X mainframes and a host of smaller new products reach customers.

There are also good reports from technical analysts, those stock experts whose projections are based on financial cycles. Indications from one prestigious broker, Drexel Burnham Lambert, are that IBM and other office equipment makers will have good performance from their shares in the short term.

Despite this seemingly good news, the last two quarterly reports from IBM plus the announcement of the advanced communications service by AT&T may create some uneasiness for IBM and, by implication, other less powerful computer manufacturers during the coming months.

The impact of the 303X series on orders for older equipment was not as severe as that of the 360 or 370 series. Nevertheless, the 303X machines can hardly be called revolutionary. What, then, would the announcement of a new generation do to orders for older equipment?

Suppose, as several industry observers have postulated, that there is an H series of ultra-powerful processors under development at IBM's data processing division.

If the various press reports bear out, IBM will unveil in advance some less powerful, but equally advanced, computer referred to as the E series.

One can hazard a guess that if two weak quarters resulted from early 303X deliveries — most Wall Street analysts believe that IBM will show substantial earnings gains during the remainder of 1978 — three or even four weak quarters could come about with the announcement of an E series and, several months later, an H series.

Other IBM office products, such as word processing devices, are also coming under increased pressure from old rivals and new entrants, such as Exxon.

Where, then, will IBM get the sales it needs to continue its historic growth? Terminals present one great opportunity and small business systems another. However, in both those markets there is burgeoning competition, and particularly in terminals, various Japanese electronics companies and much smaller US manufacturers to improve their market penetration.

On May 18, an International Data Corp newsletter published the results of a study of the prospects for plug-compatible mainframes which said that these machines could "account for some 20% of IBM's installed base of 303X and 148 and above 370 machines by 1980. This could easily add up to 30% of IBM's sales."

But Wall Street believes in results, not possibilities, and the results have been gratifying to investors. Drexel Burnham's technical stock analyst, David Upshaw, revised his previously bearish opinion of including IBM.

The question for investors is not so much whether users will buy computers, but whether they will buy today's offerings to allow their installations to grow. They can enter the next generation.

The corresponding question for the major manufacturers, particularly IBM, is whether there should be a clearly differentiated next generation. It may be that even IBM, with its revenues approaching \$20 billion a year and its cash level at \$5,000 million, cannot afford to repeat its 380 gamble because, win or lose, the shock to investors around the world would force the giant to weather a storm of discontent.

## The romance of computer crime

WHILE toy stores still feature electric trains and animated bears with their jerky, repetitive motions, characteristic noises and mechanical — and therefore tangible — innards, a new genre of amusements, built of silent and motionless electronic components, has arrived. The computer itself, which has inspired some of these games and served as a host for them as well, is perhaps the ultimate toy for the technologically-inclined. Some of the games played with computer are not, however, mere amusements but crimes.

The public fascination with things electronic, including computers, and with human depravity, has now inspired a book on computer abuses that is literate and enjoyable.

Among its readers will be computer professionals, and among that group perhaps a few who at one time or another wondered whether they might be able to achieve what the subjects of Computer Capers almost got away with: the perfect computer crime. Some of the cases in Computer Capers, published in the US by Thomas Crowell Co of New York, involve the execution of a common fraud with the aid of a computer. The machine makes such frauds far more fascinating than similar crimes executed with pencil and paper. And, because computers are often used to run the vast financial empires, data processing frauds involve enormous sums of money.

Author Thomas Whitelake, a journalist on

the New Yorker magazine, has selected a few cases as examples, and refers to many others in passing. His study of mischief carried out within the confines of a machine was part of a series of articles in the magazine.

To some cases, such as the Equity Funding affair, Whitelake found ideas that previously appeared in literature, such as Nicolai Gogol's novel, Dead Souls. Computer Capers is really a book about man's relation to the computer — or at least the dark side of that uneasy marriage. If the vast financial empires, data processing frauds involve enormous sums of money.

Author Thomas Whitelake, a journalist on

## Attorney warns: Don't arbitrate

IN a spirited essay published in the June edition of Computer Negotiations Report, Thomas Christo calls most contract arbitrators "flunkies" and advises disgruntled users to pursue their discontent in the courts.

Christo, the Boston attorney who fought for buyers in the Catamare case against IBM, the Colorado Blue Cross dispute against Honeywell and the Shaefer Brewing suit against Electronic Data Systems, believes that users who have been sold a bill of goods can get compensation via the courts.

Many such disputes are submitted to binding arbitration, a practice that Christo believes is biased in favour of the vendor. Christo, who was one of the founders of the weekly newspaper, Computerworld, and who later served as one of the newspaper's editors, studied law and set up his nationwide practice in Boston.

His clients are often buyers of computer equipment and services and his dynamic courtroom tactics have won him the admiration of many disappointed users and the respect of vendors.

Stating that the arbitrators to whom a user would entrust a dispute would "no doubt" be drawn from the data processing profession, Christo argues that most of them are not particularly competent.

They "sign up for the American Arbitration Association's list because they have little else to do. While there are obviously many very capable and erudite members, there are also an incredible number of flunkies."

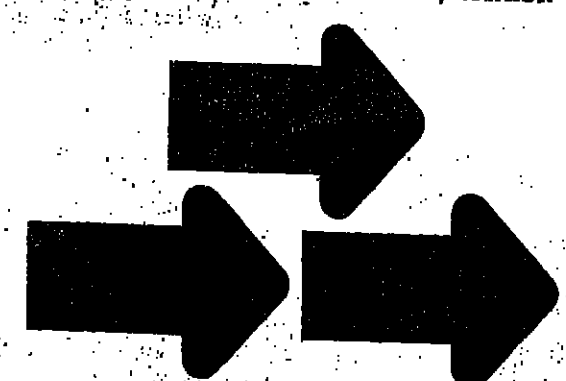
He goes on to say that arbitrators "tend to blame the user for difficulties, while the industry has matured to the point where vendors should be able to provide equipment and services that truly meet the user's needs."

Christo also believes that the public spectacle of a jury trial, while potentially embarrassing to the user, is actually more humiliating to the vendor.

Computer Negotiations Report, \$195 per year, International Computer Negotiations, Inc., 1331 5th Avenue, White Plains, Florida 3278, USA.

## Advanced Data Entry Techniques

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## Datacoms net for US banks proposed

A PROPOSED private voice and data communications network that would be shared by the 14,000 banks in the US is one of the developments discussed in a report on data communications and banking\* now available from the US consultancy, International Resource Development Inc.

The report also looks at the five areas in which electronics funds transfer systems are being implemented or considered in the US. These are automated teller terminal operations, point-of-sale and credit verification networks, wholesale funds transfer, Giro-type composite billing services and automated clearing house networks.

In the last area, the 25 clearing houses in the US are now being linked by a data network that will enable a cheque issued in, say, San Francisco, that finds its way to, say, Cleveland, to be cleared by computer communication between the clearing house at Cleveland and the San Francisco clearing house.

The network is being implemented under the aegis of the Federal Reserve Bank, the US equivalent of the Bank of England.

In the point-of-sale area the report points out that 17 million cards have now been issued in the US that provide

immediate debiting of consumers' bank accounts at the time of purchasing an item.

Although the report is primarily about US banking it discusses the Giro services provided in Europe, but concludes that composite billing services of the Giro type will develop slowly in the US.

The proposed private network for the 14,000 US banks would be leased from the US telecommunications giant AT&T and its main purpose would be to save money by sharing lines for voice and data communications.

The feasibility of the network is now being studied by AT&T and the American Bankers' Association. It will most likely take a form similar to that of the international airlines private network, Sita.

The existing message switching wholesale funds transfer systems, Fed Wire, which is run by the Federal Reserve Bank, and Bank Wire II, operated by the independent Bank Wire Association, will both probably be integrated with the proposed network.

Another prediction made in the report is that large banks in the US will grow in dominance through EFTS because they can support large staffs of technical experts to develop EFTS and will be able to make EFTS services

available to their correspondent banks in small towns.

Correspondent banks are smaller banks with which the big banks have arrangements to provide special services and they are likely to benefit from EFTS at the expense of small and medium sized independent institutions.

Looking at the effect of EFTS development on the computer equipment industry, the report sees modern sales declining because of the use of digital data networks, while banking terminal sales, not surprisingly, are expected to remain very strong. Current sales are \$300 million in the US alone.

The report also looks at the expected impact of electronic mail and satellite communications networks on funds transfer, both domestically and internationally.

\*Data Communications in Banking, 187 pp, \$795. International Resource Development Inc, 125 Elm Street, New Canaan, Connecticut 06840, USA. Tel: (0101-203) 988 5615.



## System Aid for judges Down Under

Software developed by UK software house System Aid helped in a recent produce competition (pictured left) run by the Royal Agricultural Society of New South Wales. The system, Resultmaster, was used to handle the complex marking system needed to judge a vast quantity of fruit, vegetables, wine, and agricultural produce. Resultmaster is part of the Checkmaster system run by the society on its ICL 2903.

## IBM poised to lead desk-top market

A RAPID growth in sales of business desk-top computer systems will make IBM the leader in the desk-top computer market over the next few years, according to a study\* now available from the US consultancy, Venture Development Corp.

The study predicts that sales of all types of desk-top computers will grow from \$243 million in 1977 to \$1,800 million in 1983, and that the percentage of total sales accounted for by machines for general purpose business applications will grow from 25 per cent in 1977, to 43 per cent in 1983. The report points out that IBM has its greatest strength in the business segment of the desk-top computer industry.

VDC does not foresee IBM's dominant position

extending into the engineering and scientific desk-top market, but predicts that this will grow by a much lower rate over the next five years than the business systems market — by 31 per cent a year compared with 52 per cent.

Apart from IBM, the three other leading desk-top computer suppliers are Hewlett-Packard, Tektronix and Wang. The four together, according to VDC, account for 93 per cent of the total market at the moment.

VDC defines a desk-top computer as a complete microprocessor based system selling for less than \$10,000.

\*Desktop Computer Markets, 150 pp, \$950. Venture Development Corp, 1 Washington Street, Wellesley, Massachusetts 02181, USA. Tel: (0101-617) 237 5080.

## Now parents can curb children's TV with micro 'censor'

PARENTS worried about the effects of television on their children will soon have technology coming to their aid. A US husband and wife have devised a microcomputer-based censoring device that attaches to the TV set and cuts out all programmes except those the parents have approved of.

The "video proctor" is connected in between the aerial and the set, with a lock so that it cannot be removed by unco-operative offspring.

The parent keys in the day, time, channel, and duration of each programme that is acceptable; a choice of more than one programme at any given time is possible. Then the proctor filters out all programmes that have not been specified.

The unit resembles a pocket calculator and contains a microprocessor, a clock, and a tuner to separate the channels, working on both VHF and UHF. It is expected to cost around \$180.

Ray and Joanne Dobson are the inventors: he runs an advertising agency, she is a lecturer on "The Impact of television."

## Telephone hand sets are part of the furniture

IN the US, you may buy your own telephone instrument and, once you or the manufacturer of the instrument have met certain specifications, install that instrument in your home or office. As a result, independent companies have increasingly sought part of the telephone instrument market by designing unusual shapes for their products.

A report\* on the retail market for telephone instruments, includes a study of this market. The report states that \$115 million will be spent this year on independently-made telephone hand sets; and that by 1982, Americans will spend between \$40 million and \$80 million for

such equipment.

Among the other items that will become more common are the obnoxious automatic dialers that play an advertisement to the called party when he or she answers the phone.

The book, which describes the business of filling a world with machines that, once installed, spend their days and your money making senseless calls to other machines, is the first concise explanation of this burgeoning electronics market.

\*Opportunities for retailers, selling telephone and related devices, \$75. Harry Newton's Telecom Library, 3 Sheridan Square, New York, 11014, USA.



## We stripped the ICL 1500 and rebuilt it for action

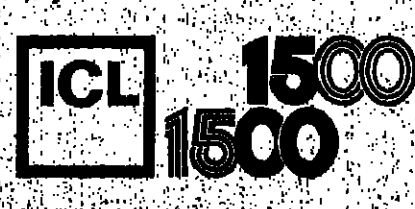
Over the past 18 months ICL have been working to improve the 1500 series, one of the world's most successful series of mini computers, with 8000 sales to its credit.

So far they have been used in singles and in clusters for distributed processing, transaction processing, for data capture and stand alone processing — now the limits are only as far as your horizons.

Once again, the ICL 1500 series is right up in front. More Power. The basic 1501-40 model has more power and a more capacious store. Above it are two new models: 1501-41 with a new 5mb disc, and 1501-43 with 2 x 2.5 FDSs. The bigger 1503 is also enhanced and has the capacity to add extra disc drives up to 20mb.

And all models have communications facilities. ICL 1500 for the communications era. The significance of these enhancements, together with other hardware and software enhancements (COBOL is now available) is that ICL 1500 now has a powerful interactive capacity.

For example, ICL 1500's linked to a central computer, could take over the menial chore of data validation at the point of transaction. They'd save expensive mainframe time and improve accuracy.



Or ICL 1500's could be used as local processors, for example with a telephone ordering service, and access the central computer for information not held locally.

This robust machine can now be plugged in anywhere, wherever the action is. Capturing the transaction as and where it happens, and passing it on. ICL 1500 was always a brilliant and economical batch system. Now it's the foremost small multi-processing system.

Another example of ICL making a good product even better.

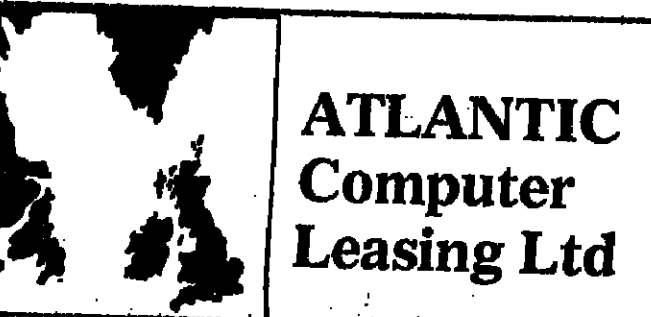
To: Pam Anderson, International Computers Limited, ICL House, Putney, London SW15 1SW. Or telephone 01-788 7272.

Please send me details of the new ICL 1500 series.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_



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## ATLANTIC ANNOUNCES EXCELLENT INTERIM RESULTS FOR PERIOD 1/1/78-30/6/78

Atlantic Computer Leasing Ltd. are pleased to announce interim results for first half of 1978 as follows —

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Trading Profit	£608,550	(£723,285)
Investment Income	£65,920	(£14,614)
Gross Profit	£682,470	(£738,795)
Net Assets	£1,897,662	(£1,288,074)

continuing strong demand for 370. Pleasing leasing program — availability of second-user systems much improved — improved profit picture due in the main to greater productivity within the Sales Organisation and the availability of reasonably priced second-user 370 systems for lease — continued growth through 1978 expected with forecast turnover of at least £10m.

extract from Managing Director's Interim report

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# Project Prelude opens doors to office of future

FOR its teleconferencing evaluation in Project Prelude, Aetna used a satellite link between its headquarters in Hartford, Connecticut, and its Chicago office. According to John J. Donovan, Aetna's director for corporate data processing support, the evaluation had four objectives: to assess the cost/benefit potential of such advanced communications services and opportunities for increased productivity; to increase user awareness of communications alternatives created by emerging technology; to determine likely costs and schedules for the new services; and to evaluate satellite communications and associated terminal and other equipment.

In a series of two-hour sessions, various departments and interested persons from Aetna's home office and Illinois operations conducted departmental meetings and training programmes to evaluate teleconferencing's potential for marketing, administrative and instructional activities. Donovan noted that marketing, training and administrative functional areas were equally represented among participants, as was each major operating division. Most of the people were from middle management, though there were several senior divisional and corporate vice-presidents.

In comparing teleconferencing to travel as a method of organising a meeting, 89% of Project Prelude participants viewed teleconferencing favourably, with training and underwriting personnel more positive, and marketing and administrative personnel less so. Participants considered the most important advantages of teleconferencing to be saved travel time and the ability to have the "right" people more readily available. Saved travel expense and quicker decision-making were viewed as less important, as was the capability of getting more people involved in a video meeting than would be possible with travel.

Donovan reported that no one type of meeting surpassed others when respondents answered the question: What types of meetings do you think may be suited to teleconferencing? "Some felt only large groups would be ideal, while others felt only small groups," Donovan said. "Marketing meetings to present new products or provide sales support were identified. Training sessions for technical or administrative employees, involving detailed form-preparation activities, as well as unstructured seminars or workshops requiring visual aids were mentioned. All sorts of general administrative meetings were identified, from planning to job performance review meetings."

In general, Donovan feels that teleconferencing can be used effectively in certain marketing, training and administrative activities to eliminate travel time and expense. "Taken by itself, teleconferencing may cost as much as, if not slightly more than, saved out-of-pocket expenses and lost executive time," he noted. "Real savings, however, will be achieved by re-applying otherwise lost travel time to more productive work, and by being able to do things not possible today."

"We expect the projected hourly use charges can be favourably reduced by exploiting new technology developments wherein video requirements are combined with voice, data and electronic mail needs in an integrated corporate communications facility. The overall benefits analysis is strengthened further as we move into the 1980s, when increasing personnel and travel costs are compared to electronic communications costs."

In their analysis of the office of the future, other insurance companies have also concluded that operating costs may not decline with the introduction of automation. Seymour Sternberg, vice-president of Massachusetts Mutual Life Insurance Company, for one believes that hardware and software costs will offset savings in secretarial and paper-related expenses, and operating costs may even increase.

Speaking on the office of the future at a recent meeting of the Life Office Management Association Systems Research Committee, Sternberg noted that "once hardware and software costs have dropped to practical levels, cost justification through direct savings will give way to arguments of faster, better and easier."

Sternberg believes that one of the most profound effects on the office of the future will be the need for closer integration of the responsibilities for data and voice communications.

"Most companies still separate their data processing organisation from the administrative function that handles telephone and mail communications," he noted. "As digital technology begins to be applied to voice signals, it will be necessary to draw upon the technical expertise of the data processing organisation. Furthermore, as the mail and filing activities of the office begin to merge into computer storage and transmission facilities, an integration will again be forced. Although some companies will attempt to transfer key data processing people to service the administrative organisation, most companies will find that an information services division, responsible for the processing, storage and transmission of digital data, voice and image

data will be organisationally required."

In another paper, Robert A. Shafto, senior vice-president of New England Mutual Life Insurance Company, termed the office of the future a "merger of technologies, organisations and ergonomics."

In this era of heightened competition, cost control and efficient management techniques, Shafto stated, the life insurance industry in particular has little choice but to harness data processing, storage and communications technologies for its office functions, just as it has applied automation to much of its new business, premium collection, policy holder service and accounting functions.

As Shafto sees it, the challenge is threefold: to blend technologies involved with communications and data, word and image processing which, formerly, have presented piecemeal solutions; to integrate previously independent information reservoirs and unrelated organisations of the corporation, such as data entry and data processing with word processing, voice communications and records management; and to adapt tomorrow's office environment to the vast numbers of people that must make it work.

As candidates for automation, Shafto identified the functions of information capture, document creation, information search and retrieval, information routing, document formatting and outputting, work-in-process control, and personal services. He noted that much of the necessary equipment to automate the office is either currently available or in prototype form as discrete devices.

What is needed, he believes, is a solution to the problem of hardware compatibility and the development of software to support image storage, retrieval and transport, as well as to control work flow and to handle text processing requirements. "Since processing and storage will most likely be split between the central host and local workstations," he added, "host and local programming code must be compatible."

Shafto believes that the transition from today's office environment to the office of tomorrow will be a gradual evolution rather than a rapid revolution.

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The acceptability to the business community of integrated satellite communications services, such as the "automated office", electronic mail and teleconferencing, was shown to be more than a salesman's dream by the Project Prelude experiment, carried out by Satellite Business Systems. For Project Prelude, SBS, which is jointly owned by IBM, Comsat and insurance company Aetna Life, provided the first US link-up of business equipment with high-speed satellite communications channels

for voice, data, facsimile and teleconferencing. Users in the experiment included Rockwell, Texaco and Aetna Life itself and the results showed considerable enthusiasm for the services (CW, July 13). In this article, Boston-based communications expert MORRIS EDWARDS looks in detail at Aetna's Project Prelude experiences, and at analyses by other companies of the way in which the automated office of the future might be implemented.

likely be split between the central host and local workstations," he added, "host and local programming code must be compatible."

Shafto believes that the transition from today's office environment to the office of tomorrow will be a gradual evolution rather than a rapid revolution. One problem, he feels, is the lack of understanding and definition of the "total office" requirements — a deficiency evidenced by the uncoordinated attempts of computer, terminal, word processing, micrographics, copier, facsimile, photocopying, dictation and communications vendors at partial solutions.

"Even among the giants like IBM and Xerox, which offer more pieces of the total office system than specialised vendors, there is internal disagreement about how all the elements should mesh," Shafto said. "Confused users will be forced to hedge, to make a 'creeping commitment' to their new automated office as appropriate products unfold and technologies merge."

Another factor facing the evolution will be the organisational impact of information technology. "Previously unrelated areas of the corporation — the mail room, the word processing centre, the space planning, the file room, the microfilm centre, the printing centre and the data processing department — must join hands in a co-ordinated approach," Shafto noted.

After months of prodding by the CCIA, the Justice Department recently put AT&T on notice that a formal investigation is underway.

CCIA's protest argues that the intent of the consent decree was to restrict Western Electric to the manufacture of products used directly in the common carrier network, and that while such equipment might be marketed to common carriers not within the Bell System, it was not to be marketed to other companies in the competitive private sector.

To read the decree more broadly," CCIA contends, "would interpret the settlement in that anti-trust suit to expand, rather than to reduce, the Western Electric monopoly which the government was prosecuting."

To support its claims, CCIA points to pertinent sections of the decree which describe marketing areas allowable to AT&T. One section in particular reads: "[AT&T and Western Electric] are each enjoined from committing, and from continuing, directly or indirectly, to manufacture for sale or lease any equipment which is of a type not sold or leased or intended to be sold or leased to companies of the Bell System, for use in furnishing common carrier communications services."

AT&T's software showcase, as described in corporate marketing materials, includes "systems" which monitor the overall operation of a computer system, "utility programs" which perform general purpose functions such as text editing

## Govt spends \$36m on Privacy and Freedom of Information Acts requests

THIRTEEN agencies of the US government spent a total of almost \$36 million over three years for processing Privacy Act and Freedom of Information Act requests, the US General Accounting Office has reported. During fiscal years 1975-77, GAO found, the 13 federal agencies handled some 147,000 PA and FOIA requests for information.

According to GAO's study, the number of information requests to individual agencies ranged from a high of 51,000 received by the Justice Department's Immigration and Naturalisation Service (INS) to a low of some 1,000 received by the US Postal Service's Inspection Service.

The three Justice Department agencies studied by GAO — the INS, the Federal Bureau of Investigation (FBI), and the Drug Enforcement Administration — accounted for about 66 per cent of the total number of information requests made to the 13 agencies. Those same three agencies incurred 45 per cent of the study group's total costs of compliance with the two Acts.

GAO also pointed out that the FBI spent well over one-third of total costs, or \$13.8 million, over the three-year period. The number of information requests to the FBI totalled 43,368.

A breakdown of operating

costs associated with the Acts shows that about 80 per cent went for salaries of personnel involved in administering the laws. Among the 13 agencies, those personnel numbered 630 (442 professional and 188 clerical) during 1977.

Other major cost items cited by the agencies were granting the access requests, accounting for disclosures, and publishing and distributing rules and notices required under the laws.

GAO cautioned that one major cost factor is excluded from the \$36 million total. That is the cost of PA and FOIA law suits. The Department of Justice, which litigates those cases for the government, had 889 suits pending as of September 30, 1977, a significant increase over the 706 pending cases on June 30, 1976.

The majority of the law suits relate to agency denials of requests for record access. Justice Department officials estimate that FOIA/PA litigations cost a total of \$806,000 during fiscal years 1976 and 1977.

Of particular interest to the Senate Committee on the Judiciary, which requested the GAO study, is the audit agency's findings on the category of requesters (i.e., curiosity seeker, Press, researcher, etc.). While that information is difficult to

obtain, particularly as the Acts do not require that citizens state their occupation, GAO said it was apparent from the agencies studied that the most dominant category of requesters was individuals who have been or are subject of investigations by the agencies.

"Some of these requesters were also identified as being criminals," GAO's report said.

That finding supports the arguments of federal law enforcement officials who complain that FOIA requirements actually aid criminals and spies. For example, they claim, spies can obtain government files that detail methods employed in trapping or tracing suspects. Furthermore, they argue, it is possible for conspirators to forge a request from a cohort, and readily spot an informant if he does not have a file.

Additionally, the officials have testified in Congressional hearings, fear that records could become public has cut down the willingness of local police to send information to federal agencies and on the ability of these agencies to promise confidentiality to informants.

A legislative proposal being considered by both houses of Congress would require the government to inform citizens whenever it intended to look at their personal records held by a third party, such as financial institutions. The Bill would also give citizens the right to oppose such access before the records were turned over.

Public comments on the proposed standards are due on August 18. An NBS spokesman says the bureau hopes to forward the package to Commerce Secretary Juanita Kreps late next month for final endorsement.

## NBS to press IBM's I/O channel-level interface as standard

AFTER a cooling-off period of a few months, the US National Bureau of Standards has again mustered the courage to push adoption of the IBM-designed input/output channel-level interface as a federal standard (CW, July 27). And instead of capitulating to the fiery arguments launched by the standard's opponents, primarily the mainframe manufacturers, NBS has strengthened its proposal and tightened the implementation requirements.

By proposing a package of interface standards, rather than the individual I/O interface, NBS hopes the more complete offering will be more difficult to tear apart, a bureau spokesman explained. The package includes the I/O channel-level interface, an accompanying power control interface and, for the first time, a proposed channel-level operational specification for magnetic tape.

The proposals, if adopted, would constitute the first federal information processing standards that cannot arbitrarily be waived by individual federal government agencies.

To pacify the opposition's expressed concern that the I/O interface could soon become obsolete, NBS says it will continually monitor the impact of the standards on federal computer operations. The proposals contain provisions requiring NBS review within three years of adoption.

Another attempt to appease the mainframers is NBS' invitation to representatives of the computer industry for participation in a Research Association Program to assist in developing interface standards for federal use. Under the program, individual companies or trade associations can sponsor technical experts to work at NBS with the Bureau's scientists.

Public comments on the proposed standards are due on August 18. An NBS spokesman says the bureau hopes to forward the package to Commerce Secretary Juanita Kreps late next month for final endorsement.

WASHINGTON  
REPORT  
BY  
CAMERON DAVIS

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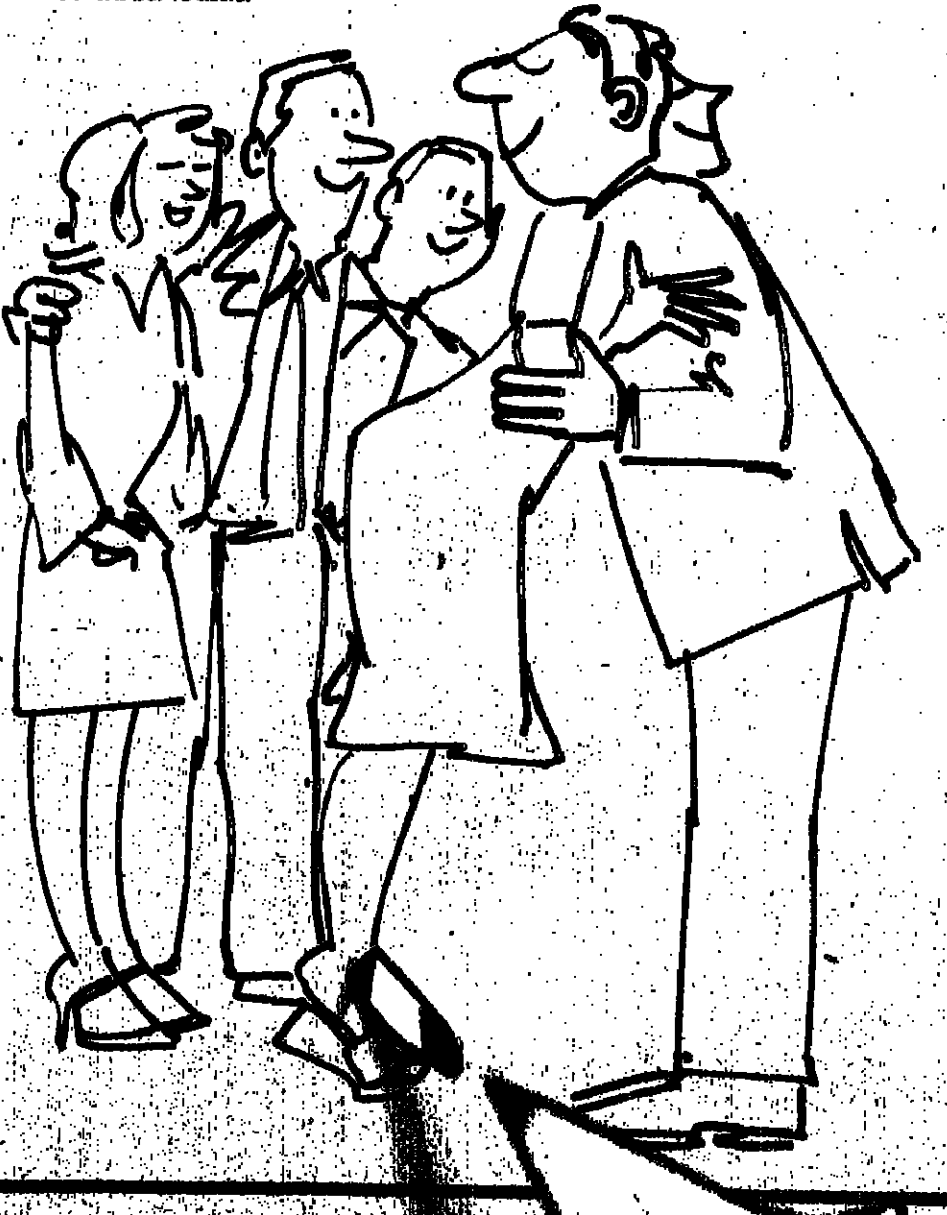
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BENELUX, Balverenstraat, The Netherlands. 010 3110 331355

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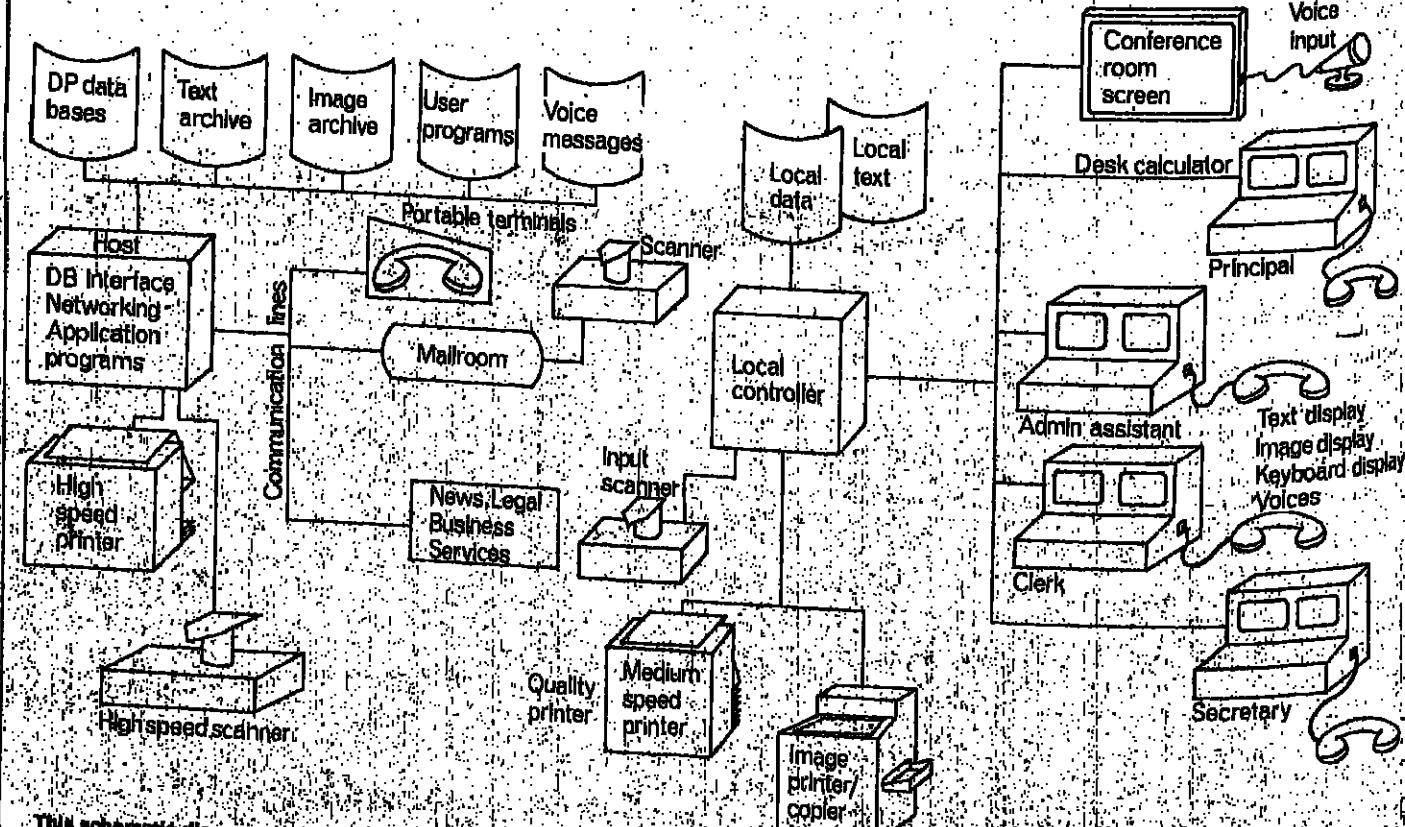
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This schematic diagram shows the system that would be used in the office of tomorrow, as envisaged by Robert Shafto of New England Life.



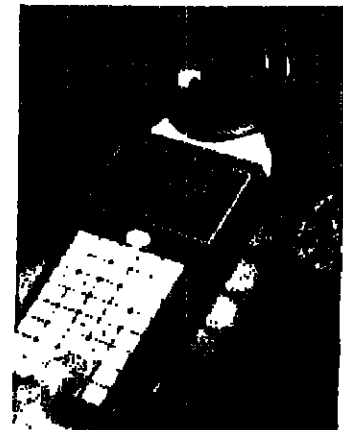
## Pocket terminal acts as a telephone for the deaf

A POCKET-SIZE terminal, intended to let deaf people converse by telephone, is being developed by SRI, formerly Stanford Research Institute, under a grant from the US Department of Health Education and Welfare. The unit is self-contained, and includes a miniature alphanumeric keyboard, three-line display, acoustic coupler and battery power supply, all in a box measuring seven inches by five.

Being portable, the terminal could be used from a telephone kiosk. Since it uses a standard computer communications system, it could also work as a computer terminal, and therefore has a large potential market which would make it cheaper to mass produce.

The current design has a liquid crystal display, three lines by 12 characters, but a display of four lines by 16 characters is planned.

The signal is picked up from the receiver of the telephone by induction; this reduces the effect of ambient noise which is one of the drawbacks of acoustic



A mock-up of SRI's "Deaf Telephone," an entirely self-contained miniature terminal that clips on to the handset of any telephone.

couplers. However, the transmitter is driven acoustically.

Dave Flystra, leader of the development project, points out that the "Deaf Telephone" with its cramped keyboard, will be not so easy to use as a normal terminal, but the ability to carry it around in one's pocket should

be an enormous advantage. Two communications modes are available. One is standard 8-bit ASCII at 110 or 300 bits per second, and the other is the 5-bit Baudot code used by the existing "Deaf Teletype Network" in the US.

Four prototype units will be completed in the next few weeks, for use in trials. SRI has no manufacturing facilities itself, but if the project comes to fruition an outside company could be licensed to make the machines in quantity.

## Tax gathering in Pakistan

THE KARACHI city authority is considering installing computers to assist in tax gathering and has opened discussions with several manufacturers.

The authority, Karachi Metropolitan Corporation, wants to build up records on each taxpayer.



## COGARVIEW

*Future of still and home movie cameras*

IT'S the industry game of the moment, of course, guessing in what new area of consumer technology micros are likely to make their mark. But I want to dwell a little on photography, a subject in which, as friends and close acquaintances will confirm, I have more than a passing interest.

Microelectronics has already done wonders for hand-held television and film cameras, of course, making possible a documentary treatment more naturalistic than Grierson, one of the pioneers of film documentaries,

could have dreamed of. Even so, movie cameras remain bulky and unwieldy objects; there must still be room for a lot of improvement.

But I am not primarily interested here in TV and movie cameras; they are already in good hands. Their unit price justifies, and their profit margins fund, a level of R&D spending which can be relied on to exploit any relevant advances in microprocessing.

What I am concerned with is the question whether there is to be a significant micro contribution to the future of still and home-movie cameras. In the short term I am very dubious. Anyone visiting Geneva or Hong Kong or Singapore must stand aghast at the enormous volume of photographic equipment being churned out by firms all over the world; cameras are a staple with the ever-growing discount store phenomenon. I know it's a popular hobby, but can anyone (other than the perennial Polaroid) really be making any money in this market?

The pace may, however, be forced. Kodak's time-honoured, and now court-challenged technique for disposing of rivals is to introduce new developments at such speed that no one can draw breath before there is some new technology to catch up on. It has successfully generated a kind of R&D perpetual motion machine in which past success provides the cash for future developments which start a new bandwagon rolling, providing the cash for yet another development, ad infinitum.

And there is a new threat — the base technology giants. If Texas Instruments and company find it more economic to build calculators and watches than to provide the chips for others, might not the same calculation apply to make them want to "go vertically integrated" in cameras? The traditional camera market is in just the sort of state of flux now that the watch market was in when electronics came along. The old market leaders are being challenged by the radical new departures of Polaroid and now the promised Nimbus 3-D camera (which has the potential anyway to completely re-shape the market); they are in no position to take on another fight. The Texas Brownie? The Intel Instamatic? Why not?

Well, one possible reason why not is the highly skilled business of lens-grinding, which will eventually become the sole distinction between good and bad cameras. Presumably semiconductor manufacturers would have no wish to get entangled in this particular bed of thorns. They would have to buy in the lenses, and that could make the whole concept look a lot less attractive.

Would an "on-board" micro be a great advantage to camera buffs? Speaking as the owner of a dozen different cameras and an extensively kitted-out darkroom, I would like to say no. For me, the art lies as much in the precision work on the aperture, focus and film speed as in the composition of the shot.

It's quite evident that technology sells cameras; otherwise why would there currently be such a noisy, raging over-

automatic focusing? The Japanese, as ever, are out ahead with the Konica CS35, but Polaroid is not far behind with its ultrasonic focusing system whose advantage over the Konica camera will be that it retains a manual option. And Honeywell (were we just talking about base technology?) is busy routing its optical averaging development and feedback against the scorn of fellow engineers.

Polaroid says that it will sell its ultrasonic device separately from the whole camera, ie as an add-on, because it has to be integrated with the rest of the camera's electronics. This sounds like micro-talk to me. I doubt if it will be long before auto-focusing, shutter speed and aperture size control, light metering and very likely film wind-on will be incorporated in a neat little silicon package.

Microprocessing is just an example of what I see as a gradual convergence between photographic technology and computer technology, anyway, and I am not talking about COG.

Some interesting developments have lately been revealed in the use of computers to reconstruct or even create visual images. The British firm Quantel, for instance, sells a device which digitises a TV video signal, reconstituting it (or any desired part of it) as required. In effect this means that an image can be instantly re-run, with a zoom in effect on any portion of the original picture, irrespective of its relevance at the time. Though television companies are selling Quantel's output, one can see an obvious future market in security systems.

More 1984-ish is the work being done by John Whitney Jr. at Information International, Inc. of Los Angeles. He has developed a technique for creating life-like "photos" of events that never in fact took place, using a 250K Graphics 1 minicomputer. Whitney's own firm (it's roughly equivalent to a Digital DECsystem 10) to simulate the co-ordinates of visual images. But let's take the thing a bit further. It's quite easy to imagine a new type of camera employing an electronic shutter — a wafer-thin piece of variable crystal which has variable opacity based on an applied voltage — which allows almost infinitely variable shutter speeds. CCD imaging of, say, 400 x 400 pixels, and a tidy cassette storage system. I am sure it need not be much larger than a current fully-equipped 35 mm job.

There wouldn't be much about involved in operating this camera, but that wouldn't be important. The artist-photographer's job wouldn't really begin until the film was back to the studio where it would be fed into the viewer-editor graphics composer.

Images could be merged, perspectives altered to construct a fascinating new world of visual imagery. It sounds way out, I know, but then so did video tape and video discs a dozen or so years ago. I'd bet someone is working on these things in the US within a few years, and within six I'd be surprised if someone in Japan had not cornered the market.

## TIM PALMER REPORTS FROM HYDERABAD

# India pursues a self-sufficiency policy

SINCE independence, successive Indian governments have pursued a policy of internal self-sufficiency, so that in 1978 there are very few items on sale in India which are not manufactured or assembled within the country. "Be Indian — Buy Indian" is inscribed on the back of millions of brightly painted trucks, and although, as in all countries where imported goods are in short supply, there is great kudos in using imported goods, most of the items manufactured in India are of a high quality.

The Indians, however, have been slow to master mass-production techniques so that even with items like television sets, five companies manufacture a total of only 100,000 sets a year. But versatility and inventiveness are widespread, no more so than in the electronics industry where a single public sector company, Electronics Corp of India, manufactures small quantities of an astonishing range of high technology items.

Founded in 1967, ECIL is headquartered in Hyderabad, in the central southern state of Andhra, and is an offshoot of the Department of Atomic Energy.

ECIL's 6,000 employees manufacture television sets, oscilloscopes, electrical and electronic components, instruments for a wide variety of applications including aircraft, X-ray equipment, and microwave and other antennas. Multi-layer printed circuit boards up to six layers thick and up to two feet square are manufactured in-house. ECIL also builds computers.

The first computer was the second-generation TDC-12, a 12-bit mini, unashamedly copied from the Digital Equipment PDP-8. Only 22 of these were built before ECIL moved on to a third generation integrated circuit version, the TDC-312, of which 45 have been built so far. There is also a 16-bit mini similar to the PDP-11/34 in performance, called the TDC-316, and 40 of these have been manufactured.

Not content with the constraints of minicomputer manufacture, ECIL now has its first 32-bit machine under test. Similar in architecture to the Xerox Sigma 7, the TDC-332 comes with 128-Kbyte or 256K-byte core memories, and is claimed to match the performance of an early IBM 370/135. It will support up to four 28 Megabyte disc drives, imported from BASF, and comes with two medium-speed and one low-speed channel. The larger ver-

sion has a floating point processor, decimal arithmetic facilities and a separate input-output processor.

ECIL plans to switch from core memory to 16K-bit semiconductor memory chips from Mostek.

The TDC-316 mini comes with a standard 32K-word, with a 128K-word maximum, and is priced at a formidable £180,000 for a basic system. It has two buses, one for peripherals which provides direct access to 4K of the memory, and the other for the rest of the memory. Several special systems have been put together by ECIL for specific customers, while a message-switching system based on two TDC-316s for the army has just completed tests.

At the bottom of the scale, ECIL is just beginning to get a micro business system into the market. Called the Micro-78 and built around the Intel 8080A, the machine has an import content of only 15 to 18 per cent. It supports up to four floppy disc drives, again from BASF, and a minimum configuration with 8K-bytes of memory and an imported Teletype costs £3,330. Bigger systems can cost as much as £30,000, and ECIL has built five so far and plans 35 for the current year.

Peripherals manufactured include teletype-compatible and RS232C interface display terminals, of which about 20 have been made, a card reader, and a tape drive which has an imported servo motor, but is otherwise entirely indigenous.

ECIL also makes core memory, and is currently working on a \$4 million contract from the Soviet Union for core memory stacks. The 18 mil cores are imported and ECIL does the stringing.

On the software front, ECIL employs 150 people, 50 doing system software and the remainder working on applications. Software developed includes a cross-assembler for the TDC-316 which runs on ECIL's CII 115 55 mainframe; a 1401 cross-assembler and emulator to run on the 316 and Cobol 68 and E-Cobol compilers for the 316. E-Cobol is a Cobol-like assembly language. A database management system for the mini is under development, a real time operating system is planned, and software to enable the Micro-78 to be used as a four-station data entry system is on the way.

A major effort is going into software for the TDC-332 mainframe. A model simulation language has been developed, Fortran, Basic and Cobol com-



There are fewer than 20 countries in the world with a locally owned company designing and manufacturing computers — and one of them is India. The company is Electronics Corporation of India, which has mastered 12 and 16-bit minicomputers and is now moving on to 32-bit mainframes.

Applications include support

for a police fingerprint processing system on the TDC-312 which is in use in Delhi and Bombay and wanted by other police forces. The batch system gives a four-hour turn-round on inquiries.

## Belgians badly informed about DP costs—report

DATA processing in Belgium is the subject of a new report by the Brussels-based Sobemap company, part of the Metra group. The results are based on a survey conducted in 1977, to which 91 organisations responded, and follow a similar study conducted in 1972.

The report is divided into three main sections: cost, applications and operating procedures, and the management of computing facilities. In each area, findings are separated according to installation size, and trends since the earlier report are highlighted.

The report notes that many organisations remain badly informed about the capabilities and costs of their computing facilities.

Software costs in particular are very poorly understood, despite the fact that software expenditure is doubling every three years, as opposed to a four-and-a-half year cycle for

hardware, says the report. Among significant changes since 1972, the report notes dramatic increases in multi-programming and distributed processing, particularly for data capture in large concerns.

"L'Ordinateur dans les Entreprises Belges. Available from Sobemap, Place du Champ de Mars 5, Boite 40, 1050 Bruxelles, 1.500 Belgian Francs.

## Dual Criterion for Sydney

A DUAL NCR Criterion computer system has been installed by the Legal and General Assurance Society at its central office in Sydney, Australia.

The deal is worth \$2.5 million and consists of two processors, a 312K Criterion 8570 and a 384K 8550. Peripherals include six 200 Mbyte disc drives, six tape drives, two line printers, and five VDUs.

## Harris Series 100 speaks your kind of language

Fortran IV · Cobol 74 · Basic · Harris Macro Assembler · RPG11  
Forgo (Diagnostic) · Snobol 4

In fact, the Harris Series 100 range of five general-purpose, virtual memory computer systems can handle all these languages simultaneously. That makes them ideally suited for use in commercial, scientific and educational roles.

Each of these modular, complete systems is an expanded and more powerful version of the S110, the basic model in the series which features:

- 98K Bytes of Memory and a Scientific Arithmetic Unit
- System console CRT with keyboard and controller
- 10.8M Byte Cartridge Disc and 9 track, 800 BPI, 46 IPS Magnetic Tape Unit, with associated controllers
- DMA Communications Multiplexer
- Seven language processors; five support libraries

including Total, the renowned Data Base Management System and four RJE and two RBT packages.

A card reader and line printer are standard with all, except the basic system, the S110.

To ensure maximum efficiency in every system, the Harris Virtual Memory Manager (VULCAN) comes as part of the overall package.

VULCAN is a comprehensive demand-paging virtual memory operating system with a simple user-oriented job control language.

With VULCAN each system can operate concurrently in interactive time-sharing, multi-level batch processing and real-time processing modes. And with VULCAN, all seven processing languages and support libraries can be used simultaneously.



The System 120, part of the Harris Series 100 range

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COMPUTER SYSTEMS

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## Most companies buying computers don't know what they are doing

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first in the hard international competition. With the NORD-10/S, associated peripherals and software programs, we can offer flexible and economic computer systems for most data processing activities. A NORD computer system will never be too limited to meet new requirements. The initial installation can be extended, as new demand grows. Give us a call and find out how we can co-operate.



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Denmark: Norsk Data A/S, Øresundsgade 5, 2640 Helle. Tel.: (02) 42 50 55.

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England: Richard Norton (NORD) Ltd, NORD House, 17 Ball's Street, London W1. Tel.: 299 83 7.

Norsk Data A/S develops, produces and markets NORD Computer Systems. The NORD systems have found extensive use in research and education, process control, data processing and networks for the application areas continuously increasing.

## Compeda's high technology software for Italy

ITALY is the latest market to be addressed by the NRDC's Compeda subsidiary (CW, February 1, 1977). The company is to exhibit its high technology software at the international conference on interactive techniques in computer-aided design at Bologna, Italy, between September 21 and 23.

Products featured will include the Plan Design Management System (PDMS), the Gaelic sys-

tem for integrated circuit design; and packages for production engineering.

Also on show will be Splice, a "computer program that synthesises spline curves passing through a set of data points.

Splice generates pieces of a family of Cornu spirals — like the draughtsman's French curves or flexible curves. This approach allows very compact curve descriptions.



# Classic success rules out GEC link

THE success of Modcomp's new Classic 7800 system has ruled out any possibility of major collaboration with GEC, according to Ken Harple, founder and chairman of the Florida-based minicomputer.

Modcomp had detailed discussions with GEC late last year which centred on the UK company taking a stake of about one quarter of the shares in Modcomp and, even after the talks were broken off, some kind of collaboration in Europe was envisaged (CW, February 9).

"GEC is now out of the picture altogether," Harple told Computer Weekly in an exclusive interview at the company's Fort Lauderdale headquarters. "Late last year our stock price was very low, and we were looking for some kind of insurance in case our figures did not turn round, but our performance since then has been so good that we no longer need any support."

"We anyway discovered a basic cultural problem with GEC."

Harple declined to elaborate on the "cultural" differences, but they may have something to do with GEC managing director Sir Arnold Weinstock's lukewarm feelings towards the computer industry.

New models are coming shortly in the Classic line, which will ultimately consist of three basic processors. There will be a new powerful processor above the one used in the Classic 7800, and micro-classic at the bottom of the line. All are 16-bit machines.

"We will begin software development in the UK in the fourth quarter of this year and are also doing final assembly and test of systems there. We plan to begin volume production in the UK in two years' time."

"We chose to site some of the software development in the UK because of the shortage of technical personnel here in the US. We also find that people are much less willing to move around the country than they used to be. The software people we have hired in the UK are very good indeed; they tend to be more disciplined and better than their US counterparts."

There is a stronger emphasis on software at Modcomp than at most manufacturers, and the company already has 75 to 80 software development engineers as against 70 on hardware.

## 'Double your memory'

THE facility from Telefile which enables users of the veteran Univac 1108 to double memory capacity to 512K words, has now been formally announced by the company. First revealed in Computer Weekly (March 20), the package, called Telefile 1108 X-10, adds four additional memory access channels and uses Telefile's T-7005 128K word memory modules.

An unused bit in the Univac memory address is brought into service to provide direct addressing of all 512K words without memory mapping.

The hardware is transparent to the OS 1108 operating system, and the Telefile memory, which can be combined with the original Univac memory up to 256K words, takes up one third the floor space and 70% less power, according to the company.

The 1108 X-10 package costs \$440,000 with 256K words of memory, including modifications and installation.

Univac the star at Sperry Rand

AT a time when all the leading US computer manufacturers except IBM are reporting major profit surges, several US analysts have singled out Univac for particular attention.

In Sperry Rand's first quarter (April to June), profit rose over 20% to \$45.2 million on turnover up 17% at \$972.5 million. Chairman and chief executive Paul Lyet identified Univac as the star performer with new orders up nearly 25%.

The backlog for the 1100/80, largest machine ever introduced by the company, has tripled over the past year, and according to Lyet, Sperry will be investing a "disproportionate amount" of its research and development budget in the Univac division.

"The computers we are working on for the future will offer as much price-performance improvement over existing computers as today's computers offered over their predecessors," Lyet told the Wall Street Journal.

IBM's share of America's worldwide computer base is on the increase, according to an analysis by Advanced Computer Techniques of figures from International Data Corp. IBM's share in 1977 was 71.1%. In 1978, 68% (CW, July 27).

OPEN competition in the provision of all communications services and the ability for common carriers to provide non-telecom services were among the sweeping changes in a legislative proposal on the com-

puter industry.

PERIPHERAL and terminal manufacturers in the UK and France are getting together to discuss ways in which they can more effectively compete against the big US and Japanese manufacturers that enjoy far greater economies of scale in their production.

Robin Lingard, head of computer industry policy at the Department of Trade, told Computer Weekly that he is arranging a meeting in Paris in September, some time during the Slob exhibition, between a group of UK peripheral manufacturers and members of the Club de la Péri-Informatique, the French peripheral builders' association.

The meeting is being arranged by Lingard in co-operation with Diell, the French government body which oversees the computer and electronics industries and, according to Lingard, the intention is to discuss areas in which UK and French peripheral builders can "sensibly co-operate."

Lingard pointed out that the Prime Minister and President Giscard decided that computer peripherals should be an area of co-operation between the UK and France when they discussed economic co-operation earlier this year.

Lingard said that a group of UK peripheral manufacturers, including Data Recording Instruments and Data Dynamics, had met at the Department of Trade several times over the last nine months, although no decisions had been made yet about co-operation.

One existing example of Anglo-French co-operation in the peripheral area is that between Data Dynamics and Périf-éric, which is its French subsidiary, but which enjoys a high level of autonomy.

Development and production of terminals is divided between the French and UK organisations.

The "stress" on the French government's intervention in the national computer industry is underlined by a report just published in France by Diell and by the Club de la Péri-Informatique.

For the first time since 1970 the French hardware industry had a balance of trade surplus last year, with hardware and services exports standing at 4,822 million French francs, \$680 million, and imports 0.4% less at 4,598 million francs, \$645 million.

This performance is considerably better than that of the UK, which last year exported about \$390 million of hardware but imported almost \$700 million.

The Club de la Péri-Informatique did particularly well, with combined turnover of its members up 28% at \$600 million francs (£180 million).



Harple... "our performance has been so good that we no longer need any support."

## ROUNDUP

A summary of main news items which have appeared since the last issue of Computer Weekly International.

## NEB transatlantic micro venture

KEY features of the plans announced for Immos, the UK National Enterprise Board's venture into the memory and microcomputer market, are an American managing director, semiconductor pioneer Dr Richard Petritz, and production facilities in the US and possibly the Far East. The corporate HQ will be in the UK. The company will aim directly at the volume world markets that are developing for VLSI microcomputers and storage devices manufactured using N-channel MOS process technology.

SOME two dozen US companies, including Time Inc., News Publishing, GE and Western Union, are subscribing to a multi-client study into vias which is being undertaken by UK consultancy Butler Cox, entitled Viewdata and its Potential Impact in the USA (CW, July 20).

PARTS of IBM's VM/370 operating system have been recorded by Amdahl Corp in order to reduce the overhead imposed by running the large-scale MVS operating system under VM (CW, July 20).

AN average of one school year's gain in reading level was made by several hundred "functionally illiterate" people in the US after only 12 hours' reading training on a Control Data 3200 system using the Basic Skills Learning System. Similar success was also shown in multi-teaching (CW, July 20).

OPEN competition in the provision of all communications services and the ability for common carriers to provide non-telecom services were among the sweeping changes in a legislative proposal on the com-

munications industry introduced into the US House of Representatives in June (CW, July 20).

THE proposed implementation of X25 as the protocol for the data network service from AT&T, and a push by the US National Bureau of Standards to enforce a much-criticised standard as the first mandatory US government Federal Information Processing standard have given further impetus to growing efforts to improve standardisation (CW, July 20).

PRESIDENT Carter has made it clear that the ban on the export of a Univac 1100 mainframe for the Soviet News Agency, Tass, was an isolated response to the sentences passed on the Soviet dissidents. Tass wants the machine in part to provide message services for journalists during the Moscow Olympics (CW, July 27).

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OPEN competition in the provision of all communications services and the ability for common carriers to provide non-telecom services were among the sweeping changes in a legislative proposal on the com-

PT 7  
The other terminal for IBM and ICL mainframes  
FERRANTI

## INTERNATIONAL NEWS IN BRIEF

### £5.5m order for Sweda

A CONTRACT for point-of-sale equipment, signed in the US by the Handy Dan Home Improvement Centres division of Dayline, for Sweda 800/80 Home Centre Systems could be worth £5.5 million over five years.

This figure is based on the planned increase in the number of stores in the chain. The equipment comprises six to 12 Sweda 800 PoS terminals and one System 80 processor per store.

470V/7 for AT&T  
FURTHER underlining AT&T's status as a prime Amdahl customer, the Western Electric subsidiary at its Warrenville, Illinois, plant is to get the first Amdahl 470V/7 mainframe later this month. This is claimed to be "considerably more powerful" than IBM's 3033. Also in line for a 470V/7 is American Airlines in Tulsa, Oklahoma, which already has a 470V/8 (CW, January 12).

### Japanese outs

FURTHER Japanese tariff cuts on imported computers are in the wind, following heavy US and European pressure on the Japanese government to reduce its enormous balance of trade surplus. At last week's Bonn summit, the Japanese proposed reductions of 7% on CPUs and 10.5% on peripherals. In negotiations, they appear to have offered 4.9% and 8% respectively.

### Space debut

PROBABLY the first batch of semiconductor material ever to be man-made in space has been produced by Vladimir Kovalev, Alexander Ivanchenkov, cosmonauts in the Russian Salyut 6 space laboratory. Such manufacture in space is of considerable long-term importance, for zero gravity produces much better crystal orientation in silicon, leading to potentially higher production yields and performance of devices.

### \$500,000 order

A \$500,000 order for the Plessey 4680 telex and low-speed data system has been awarded to Plessey Controls of Poole by the Government of Brunei.

## Fujitsu announces a new range of minis

MANUFACTURING of Fujitsu VO-3 office computers in Spain is now under way and the plant, at Malaga, currently has assemblies for 26 VO-3s, called Series 30 in Spain. Once its permanent plant is finished, before the end of the year, manufacture will be set at 100 units a year. The company building the Series 30, Secoisa, is 28% owned by Fujitsu. Meanwhile in Japan Fujitsu has announced a new range of minicomputers, the Panfacom U-1000 series, which replaces the ageing U-100 line. Models announced are the PFU-1500, with up to one Megaword of main memory, the PFU-1300 and the PFU-1100. The 1100 comes with 16 or 32K words. The general purpose minicomputers are expected to be widely used as concentrators in Fujitsu Network Architecture systems, and as announced are much more flexible than IBM's 3790, which performs a similar role in SNA, and much richer in software than IBM's Series 1, which is now being used in some SNA networks.

Languages available on the U-1000 line include Cobol, Fortran, Basic, a Macro-assembler and Mumps, the interactive data management language.

LANGUAGES available on the U-1000 line include Cobol, Fortran, Basic, a Macro-assembler and Mumps, the interactive data management language.

## Australian company wins more contracts from IBM users

THE Australian firm that hit the headlines early in 1976 when it took over the maintenance of all British Airways' IBM systems, Data Processing Customer Engineering, is now starting to pick up maintenance contracts from other IBM users in the UK and is looking seriously at Italy and Ireland as the next two European countries in which to set up business.

APART from British Airways, DPCE now has six other clients, all within easy distance of Heathrow where the main BA computer installation and the majority of DPCE's staff are located, but DPCE's general manager, Max Eastwell, told Computer Weekly that he was interested in picking up contracts in the Midlands and North of England, even if they were small installations, provided they had what he called "growth prospects."

Eastwell said that DPCE would probably open office in Italy within the next 12 months, with Milan as the most likely location, adding that Italy was the most promising of all the other major European countries for DPCE because of the level of dissatisfaction there with

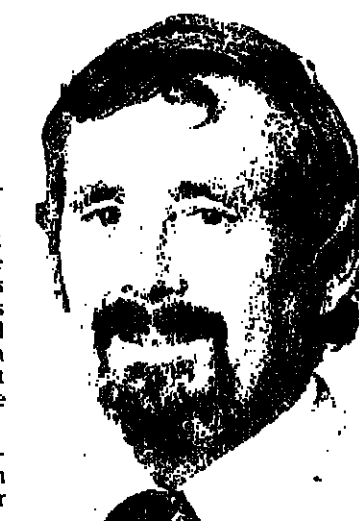
maintenance provided by systems suppliers.

Eastwell pointed out that Singapore and Hong Kong were two locations where DPCE was definitely setting up shop this year and that DPCE already had confirmed big customers in both places in the same way that it secured the BA contract before moving into the UK.

Now that DPCE is firmly established at BA, its contract with the airline has been extended for another five years from September at a value of about £4 million at current charges.

The six other customers now serviced in the UK by DPCE include Jaserve, a bureau based at Frimley Green, Surrey, the London-based Tempo Computer Services which provides service to the advertising industry and the Meteorological Office at Bracknell, Berkshire, where DPCE maintains the add-on memory on the 370/185 installed there.

DPCE employs 43 people at the moment in the UK including 27 customer engineers, and about 100 worldwide, most of the others being in Australia where DPCE's customer line-up includes Qantas.



DPCE general manager Max Eastwell... "office in Italy within the next 12 months."

## Direct input for Dutch newsagents

THE UK built system that enables data to be input directly as it is written, the Quest Datapad, has been installed by Publico NV, one of the biggest newspaper distributors in the Netherlands. It will be used for data entry jobs where the more traditional keyboard/VDU set

up is awkward and where recording information on a piece of paper and then keying it is an unnecessary waste of time.

The Datapad system installed by Publico at its Tilburg computer centre has 16 keystations and has taken over the workload of an existing key-to-disc system.

The Datapad keystations are used for recording orders and order changes telephoned in to the Tilburg centre.

As with a conventional key-to-disc system, the Datapad data entry stations are linked to a minicomputer controller. At Publico the Datapad system collects data for processing on Publico's Honeywell mainframes and Quest points out that the Datapad system has also offloaded editing tasks from the Honeywell system.

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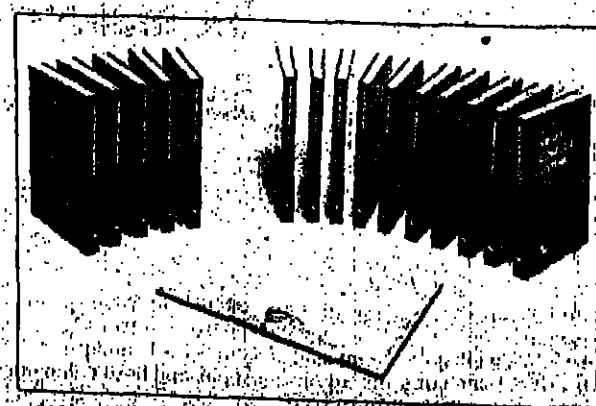
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## UK manufacture of Apple II personal computers

MANUFACTURE of Apple II personal computers for the European market will take place in the UK under an agreement between IIT and Apple Computer.

The licensing agreement specifies purchase of subsystems and peripherals from Apple, and both companies have

agreed to a free exchange of software.

IIT intends to concentrate on small business applications in the future.

IIT already sells complete systems from Apple, and the manufacturing licence has been under negotiation for several months (CW, May 18).

## German defence university installs Univac 1100/21

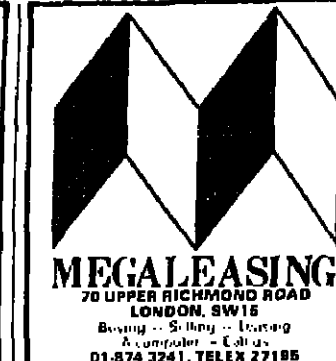
A NEW German university run by the defence forces has installed a 1100/21 mainframe computer from Univac. The machine, serving 45 Uniscop 100 display terminals, 17 matrix printers and five graphics terminals, will support studies in mechanical engineering, elec-

tronics, teaching, management and general administration. The university, in Hamburg, resulted from a proposal by Helmut Schmidt, the West German Chancellor, to improve the development and culture of the defence forces. The first buildings were ready in 1976.

## Plessey for French chain

FRENCH supermarket chain Minifix SA and its purchasing organisation Socam, at Le Havre, Northern France, have installed a Plessey 1480 portable data capture system for stock

control. A total of 17 supermarkets will be equipped with the system, which features a light pen and cassette recorder.



## Germans introduce a low-cost version of the Dietz mini

A LOW-COST packaged version of the Dietz 621 mini has been introduced in Germany aimed at the scientific, engineering and educational markets.

Consisting of a 621 X1 processor with 16K or 24K words of memory, two 256K byte floppy disc drives, a 1,920 character display and a 200 chps printer, the system, designated 621 CXT, costs Dm 67,500.

Dietz says that the system, which is built into a large work-bench, is suitable for first-time users and can be built up into a much larger system.

The operating system used is the Dietz XOS, and compilers

offered include Fortran IV, Basic and C-Basic, together with an editor and other utilities.

## Boycott by 500 scientists

A GROUP of 500 US scientists have agreed to stop all personal co-operation with the Soviet Union in protest against the imprisonment of the dissidents Scharansky and Orlov.

Malcolm Derrick, physicist at Argonne National Laboratories, announced this when greeting Scharansky's wife Avital when she arrived at Chicago Airport.

## CII-HB in Indian link-up

FRANCO-AMERICAN mainframe manufacturer CII-Honeywell Bull is planning a collaborative computer marketing venture in India following the finding of a suitable partner. The plan, which is being fostered by the French government, is likely to involve manufacturing there.

CII-Honeywell Bull was originally involved in the Indo-EEC initiative on joint computer projects, but later withdrew to pursue an independent approach (CW, January 12).

The Swiss PTT has ordered terminal systems worth £5.25 million from Thomson CSF of France for use in its TERCO computerised telephone information system based at Lucerne.

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# Chief Programmer

Starting salary up to £7000 p.a.

West London

Over the past twenty years, our client has successfully maintained a reputable position in the building industry.

They are now looking towards the future and the computer facilities required to meet the ever-increasing demands of the Group.

To date, they have developed a number of on-line systems using 3270 equipment and they are now at the early stages of extending their facilities further into on-line development and engineering systems.

In addition to the TP network, their facilities include

- ★ Timesharing
- ★ TOTAL Database (under investigation)
- ★ On-line Program Development techniques

New areas of hardware are also under investigation, such as graphics display systems and Series/1.

These expansion plans have created a vacancy for a Chief Programmer who can lead and motivate a team of c10 programmers.

Apart from possessing leadership qualities you must have a strong COBOL background and the ability to influence program design, advise and implement standards, set schedules for program development and control the programming operation to ensure deadlines are met.

If you feel you can meet the above requirements, please contact Marilyn Black, quoting Ref: 1824/CW.



Computing  
Services  
Association

WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER  
Goldsmith Recruitment International Ltd., 15 Buckingham Palace Road, London S.W.1.  
Tel: 01-828 5356 - 24 hour answerphone service.

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## This is NOT the 3rd Degree- It's a Career Opportunity to become A PROFESSIONAL ANALYST

DO YOU have experience in Engineering, Production or Manufacturing?  
HAVE YOU worked on at least one major system?  
ARE YOU familiar with Cost Control, Account Applications or Stock and Purchasing Systems?  
DO YOU have a minimum of 3 years' systems experience?  
WOULD YOU consider earning around £7,000, depending on your experience?  
WOULD YOU be interested in joining a company that offers a comprehensive education and training scheme in business methods, followed by an excellent career path?  
DO YOU feel that a possible housing allocation, generous relocation assistance, sports and social club, subsidised staff restaurant and 4 weeks' holiday contribute towards being an excellent benefits package?

WOULD YOU now ring me, STUART WINFIELD, on 01-439 9817,  
to find out more about my client and the career opportunities they offer?

**RECRUITMENT  
RESOURCES  
LIMITED**

2 Great Marlborough Street  
London W1DE  
After office hours 01-439 3833



# MYTH SHATTERING NEWS FROM CAP-CPP

In the computer world things move fast. So fast that many people have to form opinions quickly. Sometimes those opinions are based not on fact but on myth. Maybe you have the wrong idea about CAP-CPP.

We believe CAP-CPP leads the world in software for new computing technologies, as well as being an established leader in more traditional computing skills.

## "MYTH"

A software house like CAP-CPP cannot offer me a future, the way computing is going.  
For 16 years CAP-CPP has grown and made regular profits. During this time we have built a considerable expertise in many areas of computing. Next year we will spend nearly £4 million on staff courses and training to ensure that our staff stay ahead of the market in their skills.

**BASIC SOFTWARE/INDUSTRIAL  
CONTROL PROGRAMMERS/DESIGNERS**  
LONDON/READING/MANCHESTER  
TO £4,400 to £6,250

Practical experience of computers, operating systems and communications software is needed. Knowledge of PDP11 software and COBOL 60 would be of particular interest. Ref. No: 1156/CW

**BUSINESS ANALYSTS**  
LONDON/READING/MANCHESTER  
TO £7,500 + BONUS

At least 4 years experience in business and commercial systems involving a variety of applications is essential. The ability to liaise with clients in a pre and post sales advisory role is expected. Typical experience would cover accounting, order processing and stock control systems. Ref. No: 1157/CW

## "MYTH"

CAP-CPP specialises in large banking and insurance projects on large mainframes.  
The major portion of our work is now in the small business systems field using minis and micros but often for large clients. Our staff work closely with a number of mini and micro manufacturers, as well as in the traditional areas of mainframe computing.

**COMMERCIAL PROGRAMMERS**  
LONDON/READING/MANCHESTER  
TO £4,400 to £6,250

Experience of batch or on-line commercial systems is required. PL/I, RPG2, COBOL or Assembler experience would be useful. Team leading experience would be an advantage. Ref. No: 1158/CW

**PROJECT MANAGERS**  
READING & MANCHESTER  
TO £8,250 + BONUS

5 or more years experience in commercial or technical projects with at least a year in a project leading role. Staff applicants who have the ability to attend to administrative detail coupled with a keen interest in remaining involved with the technical aspect of computing. Ref. No: 1159/CW

## "MYTH"

CAP-CPP only recruit people with lots of experience.  
The majority of our recruits are new graduates who join as trainee programmers. However we are always interested in recruiting staff with limited experience as well as those who have reached senior levels, who want to develop their careers in a company whose future and prime interest is computing.

**ON-LINE SYSTEMS DESIGNERS**  
LONDON/READING/MANCHESTER  
£4,400 to £6,250

Our systems include the use of a wide range of equipment including DEC, IBM, ICL, Zilog, Intel, Motorola and Burroughs. The range of software used is even greater and applications areas include warehousing, process and stock control. Ref. No: 1160/CW

**CONSULTANTS**  
LONDON/READING  
TO £8,250 + BONUS

Involves organisational reviews, feasibility studies, equipment selection, producing systems development plans and requires a developed ability to deal directly with senior management. At least 5 years DP experience is required. Ref. No: 1161/CW

## "MYTH"

A software house like CAP-CPP wouldn't be interested in me.  
Our range of work over the expanding technological field that computing now represents is enormous. We do want to hear from people at all experience levels who would like to be part of a company which intends to stay at the top.

## BENEFITS

A well established career development plan. At least 2 weeks holiday, sick pay scheme, group sickness insurance and share purchase facilities. Senior staff are eligible for an annual bonus based on profits. Removal assistance is available where appropriate and we will arrange local interviews where possible.

To apply, complete and send the coupon, quoting the relevant reference number, to:-

Tony Knott, Recruitment Manager,  
Computer Analysts and Programmers (UK) Ltd.,  
CAP House, 14, 15 Great James Street, London WC1.  
Telephone No: 01-242 0021.

NAME

ADDRESS

POSITION

AGE

REF. NO.

**CAP-CPP**



## PL1 PROGRAMMERS

London (all areas) £4000 - £6500+

We have a varied selection of vacancies in all areas of London covering a wide range of programming experience. These positions cover a broad spectrum of the Computer Industry, ranging from large well established Software Consultancies and manufacturing companies to small retailing and publishing concerns. The equipment in use ranges from 360/40 to large 370/168 mainframes. All the companies offer highly competitive starting salaries, dependent only upon experience and ability, and fringe benefits vary from Free Lunches and Season Ticket Loans to Travelling Expenses, Annual Bonuses and Subsidised Mortgages.

Reference JC 31/1

## CHIEF PROGRAMMER

West End to £8000

One of the country's foremost retailing organisations wishes to recruit a Senior Programmer or Analyst Programmer with at least five years experience of BAL, COBOL and DLI.

They require a progressive individual who can handle the day to day administration of the department which includes Recruitment and Training. He or she will also possess the technical ability and leadership qualities to co-ordinate the activities of a team of Applications Programmers and to provide the direction and motivation necessary to ensure project completion within scheduled deadlines. This is an ideal opportunity for an experienced Programmer or Analyst to take a management role in an expanding computer department.

Reference JC 31/2

## OPERATIONS VACANCIES

IBM & ICL					
ICL/IBM	GII/OS	Ops Super	4 yrs	N. London	£6000
IBM	OS	Ass Super	4 yrs	C. London	£5000
IBM	DOS	Snr Ops	2 yrs	E. London	£5000
IBM	DOS	Snr Ops	3 yrs	N. London	£5000
IBM	OS	Operators	1 yr+	C. London	£4300
ICL	GII	Shift Ldr	2 yrs	N. London	£4500
ICL	GII	Snr Ops	1 yr+	W. London	£4300
ICL	GII	Operators	1 yr	C. London	£4000
ICL	2900	Operator	6 mths	C. London	£3600
ICL	ANY	Operator	6 mths	Various	£3600

Reference PG 31/3

## PDP11 PROGRAMMERS

London & Home Counties to £7500

If you have at least one year's experience of programming on PDP11's we have many vacancies which will be of interest.

Your experience should include programming in either BASIC, MACRO ASSEMBLER or FORTRAN under RSTS, RSX-11 etc.

Applications include Engineering, Graphics, Operations Research, Technical Support, Financial Systems, & Telecommunications & Military Systems, all offering excellent salaries, combined with the opportunity to progress in your particular field.

## FORTRAN PROGRAMMERS

West End £4500 - £5500+

The data processing division of a long established civil engineering giant is seeking young and capable programmers to work on their growing range of projects.

Applications vary from management information packages to financial and technical modelling on the one hand, and from engineering consultancy to bureau services on the other.

A minimum of 12 months' experience is desirable and, due to the diverse nature of their applications, a background on any mainframe or mini machines will be acceptable.

Opportunities to progress into Systems Analysis or new technical areas are available, and there is the added bonus of occasional overseas travel as well.

Reference PG31/4

## DATA CONTROLLERS

We have many positions, both Junior & Senior, at salaries up to £5000.

## FREELANCERS

We are a growing consultancy with an immediate requirement for freelance programmers with knowledge of the following.

COBOL, Assembler, DOS/VS, CICS/VS — Knowledge of Securities an advantage, also knowledge of German helpful but not essential. We have an on-going requirement for

ON-LINE Programmers with knowledge of Taskmaster, IMS, TCAM, ADABAS, TOTAL.

Contracts of varying lengths — minimum 3 months — in Switzerland or Germany. Excellent salary offered to the right people.

Interested? Good Enough? Send your Curriculum Vitae to BALAGLOW LTD., Box No. 1972, Computer Weekly, Dorset House, Stamford St., London, SE1 9LU, as soon as possible, including availability for commencement of contract.

## RPG II Programmer

c.£5,500 p.a. gross

Borax Holdings Limited, a member of the RTZ Group, is replacing its existing SGO-20 with an IBM System 34 using on-line data entry facilities.

We wish to recruit a programmer to assist the Data Processing Manager in the conversion and development of new systems.

The successful candidate will probably have 18 months' experience in RPG II on System 32 or System 3 and will be capable of deputising for the Operations Manager or the Data Processing Manager.

Good working conditions, generous pension, sick leave and free lunches in staff canteen.

**BORAX** a member of the RTZ Group

Please apply for application form to: Miss E. J. Love, Personnel Officer, Borax Holdings Limited, Cox Lane, Oxted, Surrey KT16 9JL. Tel: 01-897-5541.

## CHARING CROSS HOSPITAL

Applications are invited for the post of

## COMPUTER OPERATOR

in the Department of Medical Computing

Salary £4,000 - £4,500

depending on experience

including shift allowance

The Department currently provides an

out-patient service for the hospital

and operates a computer system for

the management of patient records

The system is based on a

mainframe computer with a

number of terminals

The successful candidate will join a

team of computer operators and will

be responsible for the operation of

the computer system and will

be required to maintain the

system in good working order

For further details and an application

form contact Miss Patricia Dwyer,

Personnel Officer, Charing Cross Hospital,

11 St Andrews Place, London WC2A 3DU.

Tel: 01-404 6000 ext 2857

Closing date for applications

15th August 1978

## MICROSTAR ★★★★★★★★★★

## Cobol Programmers

£6,000 negotiable — Guildford

Our client is RIAB Data Limited, the U.K. associate of a leading Swedish data processing consultancy.

As part of its U.K. expansion programme, RIAB is offering key early positions to a number of above average programmers both in COBOL and FORTRAN.

The role of a consultant programmer is both demanding and rewarding. It calls for superior technical competence allied to an energetic and confident personality. The rewards offered by RIAB, both intangible and tangible are correspondingly high.

The advertised positions will be Guildford based and will initially require reasonable mobility. Sex of course is immaterial, but candidates with fewer than three years' experience would be unlikely to qualify. Preferred age range is 25-35.

Write initially with brief career details to:

The Managing Director

Microstar Limited

Hitherbury House

97 Portsmouth Road, Guildford, Surrey GU2 6DL

Telephone Guildford (0483) 33031

## MICROSTAR ★★★★★★★★★★

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

## PROGRAMMER

S.E. LONDON

£5500 neg.

We are seeking an RPG II programmer with between eighteen months and two years' experience to join the expanding computer division of a company in South East London.

The successful candidate will be engaged on the development of commercial applications and will have the opportunity to gain analysis involvement progressing eventually to a more senior analysis and management position.

The company are committed to more advanced hardware which will be installed in the early part of next year. They are prepared to offer a competitive salary, negotiable depending on the level of experience but likely to be in the region of the figure quoted above.

Ref. E1 0308

## SENIOR PROGRAMMER

MIDDLESEX Any Machine Background To £6500

A major commercial organisation, with diverse interests world-wide, is currently commencing a number of substantial development projects. Senior programming staff are therefore required, who will take Design and Development responsibilities working in a project team environment using COBOL.

A high degree of technical merit is required coupled with the ability to direct the endeavours of junior staff.

Currently, major efforts are being directed at inventory control and financial applications areas using on-line techniques.

In addition to an attractive basic salary and the fringe benefits expected of a large company, the candidates appointed can look forward to excellent career development paths and the challenge of making full use of their background and ability within a sophisticated environment.

Ref. N2 0308

## 2 YEARS' ANY COBOL

SURREY PROGRAMMERS TOTAL TO £6500

Our client is eager to recruit additional Programmers in order to release several projects awaiting development. Centred on large IBM mainframes operating under OS, the D.P. department is ready to expand its database systems to encompass the new applications. Programmers will undergo an extensive training scheme encompassing languages, database techniques and teleprocessing.

Applicants should offer at least 2 years' experience (18 months with relevant degree) in COBOL on ANY MACHINE, or IBM ASSEMBLER.

The Company's modern, air conditioned data centre is set in the attractive countryside of Surrey and offers successful candidates an excellent opportunity to advance their careers within a progressive environment. Generous relocation expenses are available and the total benefits package is financially very rewarding.

Ref. S2 0308

## YOUNG

## ANALYST/PROGRAMMERS

Near CROYDON £4500 to £6000

Excellent opportunities exist within a major computer services company for three additional programmers keen to progress their careers within an active development environment.

These positions offer

- ★ New development projects
- ★ Analysis involvement
- ★ Pre- and Post-Sales Support
- ★ Database design
- ★ Individual Training schemes

Candidates should have at least two years' COBOL experience and will be offered good commencing salaries and an excellent career path with opportunities for project leadership leading to managerial positions.

Ref. NI 0308

24-hour answering service

Please telephone for a confidential

discussion or write to:

30 Fleet Street London EC4Y 1AA

01-353 0981

## JBA

## Assistant Section Manager up to c.£7,300

Programmers up to c.£5,500

Cheshire

A leading UK industrial service organisation is undertaking a major

expansion programme around a powerful ICL 2980 system which necessitates

immediate appointment of new staff.

Programmer applicants must be experienced in FORTRAN and COBOL,

with design and implementation experience of scientific or commercial

systems (batch or RT).

The senior post is open to degree level candidates with a proven record of

installation policy management, plus experience of staff organisation and

liaison with suppliers of hardware and software. The successful candidate

will have a programming background in FORTRAN, COBOL and batch

RT processing.

First class opportunity to enjoy exceptional service conditions of employ-

ment in a pleasant working locale. Contact: Mike Creamer

Marketing Support Analysts

West London up to £7,000 + car

This company is seeking self-motivated analysts, ideally from a

communications systems environment who would like to apply their

talents to marketing a first class product and offer pre/post sales support.

Applicants will be readily considered who have a fairly broad knowledge of

the d.p. industry, particularly the terminal systems market, some back-

ground in technical programming and analysis is a definite bonus.

The company will offer a generous salary commensurate with experience,

a prestige company car (including private mileage) and a definite career

path. Contact: Mike Creamer

System Ten Programmers

Berkshire up to £8,500

A well established international organisation has vacancies for

programmers to join a team developing commercial systems. Candidates

must have at least two years programming experience, for the junior

positions, together with some systems design for the more senior vacancy.

A background in commercial and financial applications would be an

advantage.

This is an exciting opportunity to work in a professional team where the

working environment and prospects are excellent. Salary negotiable with

large company benefits. Contact: Andy Wright

For further information on any of the above vacancies please contact the appropriate consultant.

If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES, International Personnel Consultants

16 Maddox Street, London W.1. Tel: 01-491 4478

## COBOL Programmers

Surrey Start to £6,900 + BUPA

Specialising in the provision of conversion services to installations

changing or upgrading their hardware, this company requires good

COBOL programmers to help them stay on top of the most up-to-date

computer technology.

Their Richmond headquarters services both Europe and UK, so after

initial training you could find yourself spending short periods abroad

supported by generous Tax-Free Allowances on top of your salary. If you

enjoy programming, would welcome the chance of travel and variety, and

relish the idea of keeping constantly in touch with modern equipment and

ideas, you may fit into this challenging and exciting environment.

First class training and promotion opportunities, relocation expenses and

free life and health insurance are some of the substantial benefits available

with this company. Contact: Andy Wright

Systems Analyst

Leicestershire c.£5,500+

This well established toy manufacturer is currently in the process of

designing a new Materials Requirement Planning System on their new

IBM 370/115 under DOS/VS, using TOTAL.

They require a Systems Analyst, with experience of Bill of Materials based

systems, to undertake a large part of the design work and see it through to

implementation. COBOL is the main programming language, although

programming experience is not essential.

An attractive package is on offer for the successful candidate, including a

realistic starting salary to be reviewed twice yearly, plus a profit sharing

scheme (10% of salary for the last two years) and free BUPA.

Contact: Andy Wright

Junior Technical Author

Italy Negotiable (incl. Tax free exp)

The small documentation team assigned to a major manufacturing

company near Rome now has additional projects and seeks assistance on

a fairly long-term basis. Applicants should be either practising junior

Technical Authors (software) or programmers with experience of mini

computer systems. Some writing background is essential. The successful

candidate will be single, able to start at fairly short notice and willing to

develop his or her career within a leading consultancy organisation.

Call to discuss this vacancy in particular. We also have many others in

Holland, France, Norway, and the UK. Contact: Mike Creamer



## NEW TECHNICAL SUPPORT POSITIONS IN OUR PROFESSIONAL SERVICES DIVISION

Our Professional Services Division provides a wide range of consulting services to Industry, Commerce and Government—both independently and in support of our Systems and Data Services divisions. These new positions arise in expansion of our technical support group involved in pre- and post-sales assignments.



### WHO IS CONTROL DATA?

WE are a computer company employing 11,000 people worldwide.

WE have a firm commitment to the computer industry, the United Kingdom and the training and advancement of people.

WE are a world leader in the provision of computer services, large-scale computers and peripheral equipment. This position is continually strengthened by our ongoing investment into more advanced products and services. Such a range of activities presents considerable scope for the advancement of personnel at all levels and disciplines.

WE offer a challenging and rewarding career opportunity with involvement in software development, installation and support, together with some sales-related activities in the areas of system configuration and benchmarking.

WE are looking for technical people of the highest calibre and offer salaries and associated benefits commensurate with the demands of the post. If you have the qualities and experience we are seeking—please read on.

Please write to Mrs. Margaret Spence with full details of your career to date. Professional Services Division, Control Data Ltd., 22a St. James's Square, London, S.W.1. Telephone 01-930 7344.



MORE THAN A COMPUTER COMPANY

## USER SUPPORT PROGRAMMER

The Daresbury Laboratory, located in the Cheshire countryside, is developing major national facilities for research into atomic, molecular, solid state and nuclear physics. Exploitation of these facilities requires first-class computing support. Computers at the Laboratory include an IBM 370/185, GEC 4070's, PDP-11's and Interdata's.

We are looking for young people, male or female, to fill vacancies in the User Support Group which is responsible for providing general support for users of our computing facilities. Previous experience of computing whilst advantageous is not essential as training will be provided.

Appointment will be made at one of two levels:

(a) Assistant Scientific Officer—applicants under the age of 27 should possess GCE 'O' level, or CSE Grade 1, passes in at least 4 subjects including English Language, or Literature, and Maths or Physics. However applicants with 'A' levels would be preferred.

Salary: fixed according to age, on the following scale: £1,776 to £3,203. Example of starting salary is £1,776 at age 16; £2,938 at age 18; £2,731 at age 22 or over. Older candidates might receive additional increments if they have previous relevant experience.

(b) Scientific Officer—applicants should possess a good honours degree in a relevant subject.

Salary: fixed according to qualifications and experience on the following scale: £2,538 to £4,151.

There is a generous leave allowance and a non-contributory pension scheme for both grades. The Laboratory also operates a flexible working hours scheme.

Closing date: 18th August 1978.

Application forms can be obtained by telephoning Warrington 85000 ext. 447 or writing, quoting reference number DL/836/8V, to:

The Personnel Officer

**DARESBUURY LABORATORY**  
Science Research Council  
Daresbury, Warrington WA4 4AD

## SENIOR TIMESHARING SALESMEN (Manager Designate)

### MANCHESTER

BASE SALARY to £6,500 plus Commission and Commission accelerator plus Company Car

Our Clients are a highly successful timesharing organisation whose commitment to commercial applications and customer training has ensured their success within the United Kingdom. They are now expanding their client base in the North of England from a Manchester location. They offer a full range of timesharing packages with particular specialisation and success in the area of Database management.

This represents an excellent opportunity for a Salesman with a proven track record within the industry to head the Manchester operation. The responsibilities of this Manager Designate will grow with proven results.

Excellent technical and marketing support will be given to the successful candidate and other benefits include Company car (all mileage paid), training in the United States, excellent commission accelerator, BUPA and life assurance.

CONTACT: Sheila Bradbury on 061-833 0427

### SPECIALIST COMPUTER RECRUITMENT LIMITED

# SCR

**BIRMINGHAM 021-236 3781**  
Freeport, Equity and Law House,  
35-37 Great Charles Street, Queensway, Birmingham B3 2BR  
**MANCHESTER 061-833 0427**  
Freeport, Blackfriars House, The Parsonage, Manchester M3 2BB  
**LONDON 01-935 0671**  
Freeport 6, 102, Blandford Street,  
London W1E 1JZ



## We're switched on— are you?

The brand new multi-million pound, purpose-built Data Centre of BL Cars is one of the most advanced computer technology centres in the world and utilises a sophisticated microwave network carrying traffic between 48 locations. The first part of the project has been completed to schedule and the second phase, to transfer all existing IBM mainframes within the company must be finalised by the end of this year.

To enable future implementation dates to be met the following professional operations personnel are required:-

### Shift Leaders Senior Computer Operators Computer Operators

Ideally you will have experience in at least three of the following: DOS/VS, VS11, HASP, MVS, TSO, IMS or CICS. More important you should also have a genuine interest in computing as a career and not just be a button pusher.

Benefits are those you would expect of a major company and include salary up to £5,700 including shift allowances, 5 weeks' holiday, pension/life assurance and sick pay schemes and substantial discount on BL Cars and accessories. Generous relocation assistance will be provided as necessary to this pleasant rural area where housing is favourably priced.

So, if you are looking to develop your career in an exciting environment, using advanced technology and the idea of internal and external training appeals to you, ring Rod Watts on Redditch (0527) 28515 or alternatively write for an application form to:

Operations Manager, BL Cars Limited, Data Centre, PO Box 5, Redditch, Worcs



## BL Cars Limited

### Computer Appointments

## ANALYST/PROGRAMMER

£5,500

PROGRAMMER £4,750

HOUSING AVAILABLE

Our Client, one of Europe's largest suppliers to the Engineering Industries, started off as a family concern. Having been bought by one of the UK's largest Companies, it still retains its family atmosphere. To them people count.

The emphasis is on Development and On-Line work. It is moving through On-Line Order Entry to a Stock Control System, and Production Control, using an ICL 2904 and RPG II.

The Analyst, who will be based in King's Norton, will need System 3, 32 or 34 experience. He will be responsible to the DP Manager and will be liaising at Director level.

The Programmer, who must have 2903, 4 or 1900, and On-Line experience, will be based at Redditch.

For both positions RPG II is a must.

PHONE BILL BYRNE ON 01-439 6293

(REVERSE CHARGES)

Computer Appointments

Appointments 54, 62 Regent Street London W1A 4YJ Tel: 01-439 6293

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

### BUSINESS ANALYST

LUTON NEW 2960 INSTALLATION c £6200

Our Client, a major British Industrial Company, wishes to appoint a Business Analyst within their central management services department.

The Business Analyst will hold responsibility for various assignments within production divisions and will supervise the relevant applications development personnel using the computer installation's new ICL 2960 hardware.

Candidates should have a proven record of successful systems implementation and possess the necessary personal qualities and experience to represent the department in co-ordinating requirements of General Management and involving travel to the operating divisions within the U.K.

In addition to an excellent benefits package the person appointed can look forward to a positive career path within an expanding department where rewards are closely geared to one's personal achievements.

Ref. N3 0308

24-hr. answering service  
Please telephone for a confidential  
discussion or write to:  
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01-353 0981

## Ludbrook

STOP PRESS!! REAL TIME PROGRAMMERS (Home Counties) EXCLUSIVELY!!

The success of this new multi million pound contract is dependant on the recruitment of superior real time programmers.

At least 18 months experience, preferably in a scientific environment would be invaluable, although this should not preclude commercial mini buffs from applying for these exciting projects.

Register NOW with the foremost D.P. recruitment bureau in the East Midlands.

Contact in the strictest confidence Paul Bell - Leicester (0533) 52314.

LUDBROOK MANAGEMENT SERVICES  
1 East Gates, Leicester.

### UNIVERSITY OF SURREY COMPUTING UNIT

### SENIOR COMPUTER OPERATOR Up to £4121 (plus pay award pending)

Six week's annual leave. Excellent sports facilities and social amenities. Very pleasant surroundings on University campus.

We need a young (but reasonably experienced) operator, with the ability and confidence to take charge of our computer room when the Shift Leader is absent. We have several computers — mainframes and minis. There is an unusually wide variety of job mix — scientific and data processing — batch and real-time. Three shifts, five day week.

For further details, or to arrange an informal visit to the Computing Unit, please telephone Miss A. MacDougall, Secretary to the Operations Manager, on Guildford 71281 ext. 470/488.

For an application form, write to the Staff Officer, University of Surrey, Guildford, Surrey GU2 5XH, or telephone Guildford 71261 ext. 462.

# Systems Analysts

Starting salary up to £7000 p.a.

The construction industry offers a unique opportunity to develop systems in areas which are relatively unexplored to computerisation.

Could you:

— design a system to estimate the cost of a multi-million pound building project.

— integrate into that system, a project control system to ensure outputs and costs are effectively controlled.

— integrate resource scheduling to maximise on-site profits.

These are just a few of the many areas our client wishes to computerise to ensure continued competitiveness and success in the 1980's.

Their current computing needs are met by:

- ★ IBM mainframe
- ★ TP network based around 3270
- ★ Timesharing
- ★ TOTAL Database (under investigation)
- ★ On-line program development techniques

If you have a proven track record of systems design and implementation, the ability to lead a project and communicate at senior management level, then you would find this a very exciting environment in which to work.

Our client is based in North West London and offers a bonus system, free BUPA membership and Life Assurance, 4 weeks' holiday. Ref: 1825/CW.

Please contact Marilyn Black.



WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER  
Goldsmith Recruitment International Ltd., 15 Buckingham Palace Road, London S.W.1.  
Tel: 01-928 5356 - 24 hour answerphone service.

## GOLDSMITH RECRUITMENT INTERNATIONAL



# Where to lay hands on the most exciting software work for experienced people

Just for a moment don't worry who we are or what our business is.

If you've developed noteworthy experience as a software professional, you'll have covered quite a wide range of applications. Financial packages, management information, stock control, payrolls, will all have grown under your touch. So where do you go from here?

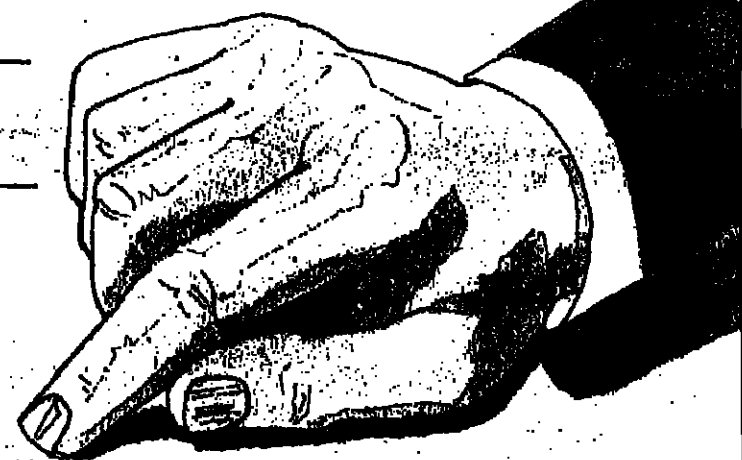
We don't operate in any of those areas. We produce highly sophisticated electronic systems, each of which needs specialised computers and software packages.

Don't think for a moment that you can't handle it. The transition from commercial to a technological based environment is possible with the added rewards of greatly increased job interest and a personal involvement with a real-time on-line system.

Quite a few people have done it before you, and one of them has this to say: "... our department can offer a more complete spectrum of work than any other company. Mini computer, micro computer, application packages, standard software, compilers, operating systems, techniques and specialists. The disciplines involved ... the career development ... the potentiality for line management ... all contribute to a good career."

The only way to find out just how exciting this work is, and how rewarding, is to contact us.

Please write immediately to D. C. J. Watkins, Software Manager, Marconi Radar Systems Limited, 'Freepost' Chelmsford, CM1 3BR, Essex. (no stamp required) Tel: Chelmsford (0245) 67111.



You'll have a say in the definition of complete systems. You'll work through each project from design to on-line testing, and liaise with customers to determine their exact requirements. Since the systems are central to the product itself, you'll rub shoulders with specialists from other technical fields and gain an understanding of their activities. We're talking about very advanced projects, with sophisticated fail safe and standby facilities, rapid response times and modern man machine interfaces.

## Senior Analyst/Programmers

with five years software experience,

## Consultants

with eight years programming and analysis experience.

Salaries will be commensurate with qualifications and experience and will be competitive.

All positions are open to men and women.



## Wellcome

The Wellcome Foundation Limited is a major British-owned international pharmaceutical company. We have recently completed our new, purpose-built Computer Centre and acquired a new configuration, comprising of an IBM 370/145 and 370/148.

We now wish to further strengthen and enlarge our present operating staff and can offer attractive opportunities on a 5-day week - 2-shift system (8 am-4 pm/4 pm-midnight), to:

## Senior Operator

c £5000 inc. Shift Allowance

to lead a team of operators. Candidates should have at least 2 years' experience using OS/VS1 or MFT. Experience on OS/VS1 JCL would be a distinct advantage. REF FY/754/1

## Operator

c £4200 inc. Shift Allowance

Candidates should have at least 12 months' experience using OS/VS1 or MFT. REF FY/754/2

For both posts, a good working knowledge of VM/370 and/or IMS would be desirable but not essential as comprehensive training will be given, where necessary. Prospects for career development within the Computer Division and other functions of the company are excellent. First-class benefits include generous assistance with relocation expenses, where appropriate.

For more information and an application form, please telephone or write, quoting the appropriate reference, to

K. Grieve, Personnel Officer  
The Wellcome Foundation Limited  
Temple Hill, Dartford, Kent  
Tel Dartford (32) 3488, ext. 2283.



**UNIVERSITY COLLEGE, LONDON**  
A new research project will involve management analysis of research projects, involving all and supervision with general computer subjects including: COBOL, FORTRAN, BASIC, and ALGOL. These facilities available include: several PDP-11 computers, access to many experts, and on-line use of large remote data computers. Details of the research will be on personal interviews including the 250 Access Project.

**A SENIOR RESEARCH FELLOW**  
Is required to direct the research aspects of the project. A degree, a strong theoretical background with proven research ability are necessary conditions. Candidates of computer science and/or related computer science disciplines are preferred. Salary range £10,000-£15,000.

**AN ENGINEER/TECHNICIAN**  
Is needed to help maintain the PDP-11 computers and the communication equipment. Details include design and construction of hardware interfaces, software, and hardware. Salary range £4,000-£5,000.

**A RESEARCH ASSISTANT/PROGRAMMER**  
Is needed to participate in the research aspects of the project. A degree and programming experience, preferably with real-time and on-line systems, are essential. Salary range £3,000-£4,000.

Applications by September 26 to Professor P. T. E. O'Brien, Department of Statistics and Computer Science, University College London, Gower Street, London WC1E 6BT.

## Computer Programmer

Letraset International have recently installed a PDP-11/34 mini-computer, providing computer facilities to UK operating centres based in Central London and Ashford, Kent.

Current developments are in both manufacturing and financial areas within the company. The successful candidate will join a small team providing commercial systems and programming support to these operational centres.

Applicants should be capable of working with a minimum of supervision and be educated to at least 'A' level. Eighteen months' experience of BASIC PLUS programming is essential and a knowledge of R.S.T.S. is desirable.

The company offers above-average terms and conditions of employment including 4 weeks' holiday and a 4½-day week.

For an application form, please contact

Peter Meier  
Personnel Officer  
LETRESET INTERNATIONAL LIMITED  
Kingsnorth Industrial Estate  
Ashford, Kent  
Tel: Ashford (0233) 24421

## Letraset

## University College Hospital Intermediate Systems Designer/Programmer

To lead a small team working on the expanding Pathology data management and on-line acquisition system, and the design and implementation of a Haematology Laboratory system.

The system is on a C.T.L. Modular One computer with disk backing store. The job offers considerable scope for experience in design, programming and implementing a computer system in a real time environment. The successful applicant will be expected to adopt a disciplined professional approach, and must be used to working to time schedules.

Applicants should have at least 3 years' experience in computing. A knowledge of Modular One, Coral 66 or Medical Computing would also be advantageous. Salary including London Weighting £5,313 - £8,476.

Application forms and further information can be obtained from Personnel Department, University College Hospital, Gower Street, London WC1E 6AU. Tel: 01-267 9500, Ext. 381, quoting Ref. CW/140/DP. Closing date 19th August, 1978.

## SENIOR SYSTEMS ANALYST

Worcester/Birmingham

Redman Heenan International is an engineering Group of some 16 Companies and £30m turnover and a performance record showing improvement each year since 1971. They are currently restructuring and expanding their Group D.P. Service and seek a Senior Systems Analyst.

He will identify systems needs in the manufacturing and engineering activities, and develop and implement systems as required. He will control a systems team of analysts and programmers and will report directly to the Group D.P. Manager.

He must have in-depth experience of designing systems for manufacturing control applications and some programming experience (preferably COBOL and RPG). He will be analytical in diagnosis; imaginative in solution. Critical factors are technical ability and the personality to achieve results. Age is flexible. An attractive remuneration package will be offered.

Please telephone N.F. Churchill,  
Executive Resources Ltd.,  
City Centre House,  
Union Street,  
Birmingham B2 4SR.  
021-643 6071.

# CANADA

## PROGRAMMER/ANALYST

### £8,000 to £10,000

We are the Canadian Division of a multi-national textile company with its head office in the U.K. We are seeking a high calibre individual to participate at a senior level in the development of real time systems using an ICL 2904 computer.

Applications are invited from candidates who are experienced in the following areas:

- Solid ICL programming experience using COBOL
- Experience in programming real-time systems
- A sound knowledge of ICL software, and in particular TPS on-line software

The successful candidate will be a self-motivated individual capable of dealing with the complexities of real-time systems, and able to communicate effectively with User Departments. Applicants should be ambitious and display the potential management skills that would ultimately lead to promotion.

We offer an attractive staff benefits package and relocation assistance will be given.

Please apply giving full details of experience to

B. M. Loftus, D.P. Manager  
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A graduate recently qualified in Engineering with Electronic or Computer Science bias, is required to work with our team on integrated security, fire, and environmental control systems. Training will be offered in Systems Engineering, Project Management, and Commercial Systems.

An attractive salary package will be negotiated. Please write with full details to: MARILYN DAVIDSON, COMBYTE SERVICES LTD., SUITE 74-78, 12-13 HENRIETTA STREET, LONDON WC2E 8LH, or phone 01-240 3223.

## DEPARTMENTAL COMPUTING OFFICER

The person appointed will be required to perform a range of duties serving the department's computing interests. The duties will include: collection and selection of software for mini-computer, job control language applications, and assistance in programming for main frame computers, surveillance of departmental computing equipment.

Applicants should hold a degree in Science, Mathematics or Engineering, or equivalent qualifications, together with appropriate working experience. Starting salary will be in the range £2,850 to £3,170 a year according to qualifications and experience.

Please write for application form to the Staff Officer, North-West University, Chatterbox Street, Birmingham, which should be returned by 31st August, 1978.

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At least 2 years' OPERATIONS experience?

If you are a freelance operator now, or intend to go freelance in the near future, contact us for details of our current and future assignments in all areas of the U.K.

The ability to communicate and an intelligent attitude towards freelance work is considered essential.

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Position Required \_\_\_\_\_ Salary / Rate \_\_\_\_\_

Notice Required / Date Available (delete) \_\_\_\_\_

Areas Preferred: First Choice \_\_\_\_\_ Second Choice \_\_\_\_\_

Experience to date: (Last Position First) \_\_\_\_\_

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and Location \_\_\_\_\_ Mth / Year \_\_\_\_\_ Mth / Year \_\_\_\_\_

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## COMPUTER RECRUITMENT DIVISION

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**IBM 370/138** to £4,200+  
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**UNIVAC 9400** £4,500  
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SENIOR OPERATOR for international City based manufacturers. Any UNIVAC experience (1 year minimum) acceptable. Outstanding prospects. Good perks.

**BURROUGHS** £3,500 inc  
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JUNIOR OPERATORS with 6 months plus experience. City based. Co. Prospects excellent, perks include 4 weeks' holiday, LVX, season ticket loan.

With 18 months' experience and OS/VS1/2 knowledge, it's with a famous City Bank and benefits include a CHEAP MORTGAGE. Top prospects.

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**RPG II** £3,500-£7,000  
**PROGRAMMERS** £4,500-£5,750  
A fantastic opportunity to join the world-wide financial computer network IBM VS/370, S/VS 370. Exciting growth potential and CHEAP MORTGAGE.

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**PROGRAMMERS** £4,900-£7,200+  
A prestige City institution offers challenging career prospects in a dynamic environment. Perks include 4 weeks' holiday, LVX, season ticket loan.

**IBM DOS/OS COBOL** £3,800-£5,500  
**PROGRAMMERS** £3,800-£5,500  
Outstanding career prospects await the programmer with 2 years' experience in COBOL, RPG/II, and PL/I. A famous City Bank and benefits include a CHEAP MORTGAGE.

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**ICL COBOL** £4,200-£5,500  
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A sophisticated technical environment. Boost the programming team. They have a large ICL 1800 installation and offer excellent career prospects and benefits.

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Outstanding career prospects await the programmer with 2 years' experience in COBOL, RPG/II, and PL/I. A famous City Bank and benefits include a CHEAP MORTGAGE.

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As an international Corporate Bank with an outstanding reputation, you could hardly find better career prospects than those available at our UK Data Centre in Stratford. Our modern building is only a minute away from the tube station and bus terminal and there is ample free parking for those with their own cars.

Our equipment is also likely to be better than the hardware you're currently using. An IBM 370/138 and 370/135 (with a 370/148 on the way) means you should have experience of DOS/Vs and preferably either POWER/VS or CICS/VS and be prepared to work shifts.

If you feel you have what it takes, we would very much like to hear from you.

Just write to Kathryn Riley, Head of Personnel Administration & Recruitment, Morgan Guaranty Trust Company of New York, P.O. Box 161, 33 Lombard Street, London, EC3P 3BH. Or telephone her today on 01-555 3111 extension 2747.

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## PERKIN-ELMER DATA SYSTEMS | INTERDATA DIVISION

### COMMERCIAL SOFTWARE SUPPORT ANALYSTS

c. £6,500 + CAR

Perkin-Elmer Data Systems is currently one of the fastest growing mini-computer companies in the U.K. This rapid expansion means that we need top calibre people who are able to maintain our high standards of customer support. We urgently require software support analysts to service our growing base of commercial installations. These jobs are demanding and necessitate travel throughout the U.K. Applicants must therefore be able to work on their own initiative and deal with a variety of interesting customer situations.

The successful applicant (M/F) should be over 25 and have at least 4 years' experience of COBOL and other commercial software, e.g. ISAM, TP or DBMS. Knowledge of assembly languages and OS software would also be an advantage although not essential.

\* Contact Ian Sahet or Angela Nowell for further details.

227 Bath Road Slough SL1 4AX  
Telephone Slough 34511

## Good with Computers and People?

We are looking for a Data 100 TERMINAL SUPERVISOR in the Computer Terminal Section of Head Office at Millbank. The successful person will be the senior member of the team taking full day-to-day responsibility for the operation of the terminal used by ICI Head Office to transmit to a remote IBM 370 main frame.

Applicants should have relevant experience of staff supervision and in operating a computer terminal and ancillary equipment. Familiarity with transmission circuits and modems would be desirable. Experience of operating personalised computing terminals is desirable but not essential as training can be provided.

Terminal facilities are likely to be expanded in the near future, thereby enriching the job remit.

In addition to a starting salary in excess of £4,000, ICI offers flexible working hours, a subsidised canteen and recreation club and a profit sharing scheme.

If you have the relevant experience and maturity and are interested, please apply in writing to Miss June Nichols, ICI Limited, ICI House, Millbank, London SW1, or telephone on Monday, 7 August - 01-834 4444 ext 3881



### Modern Management and the Computer in Ealing and Brent

Applications are invited to fill the senior posts of Systems Manager and Data Base Administrator. These offer challenging and creative opportunities as they are key appointments developing further the joint service to provide non-financial as well as financial applications in the various Departments of both authorities. The joint service has recently been restructured and new appointments to the staff authorised.

Data Base Administrator  
POB. Ref. No. 096TC. Salary  
£7329-£8073

The London Boroughs of Ealing and Brent have now completed the first phase of a joint property data base. The Data Base defines all property in both boroughs based on a unique property reference number system forming a set of hub-files. The system is now being operationally tested. The project uses DL/1 and GIS with on-line programming facilities to various departments using display screens. The Administrator will lead a team of design and two systems analyst who are in post. The project is managed by a small group of senior officers representing corporate interests in Ealing and Brent. Their objective is to provide an integrated information service relating to all land and property in both boroughs to greatly improve the operation and efficiency of property based processes and provide vital information for management in the planning and development fields.

A man or woman qualified in a relevant discipline is required with a wide knowledge of computer systems. Experience of Local Authority work would be an advantage.

#### Systems Manager

POB. Ref. No. 097FD. Salary  
£7329-£8073 per annum inclusive

The London Boroughs of Ealing and Brent have a team of six senior systems analysts and systems analysts working on the development of a wide range of systems, particularly in the area of financial management information, public libraries, education, payroll, housing, administration, etc. For some time there has been a need for a man or woman to lead this team and the post of systems manager has been created for this purpose. The systems manager will have a major role in creating a plan of computer development for the two authorities, particularly in the area of management information and teleprocessing, and will direct the development of new systems. This expanding installation provides a wide range of computer services to local government using an IBM 370/145. The environment includes data base (DL/1) and teleprocessing (C.I.C.S.).

Candidates should have a degree or equivalent qualification preferably with several years' experience, which should include the installation of at least one large system. Experience of Local Authority work would be an advantage.

A 35-hour flexible working week is in operation. Assistance will be given with relocation expenses in approved cases. Interest free loans for season tickets. For an informal discussion please ring Mr. R. Wayne, Computer Manager, on 01-892 5566, Extension 2201. It is intended to hold formal interviews for these posts during the week commencing 4th September.

Application forms and further details from Personnel Office, Room A202, Town Hall Annex, Ealing W5 2BY. Telephone 01-878 2424 Extension 3280. Closing date 14.8.78. Please quote relevant ref. no.

### COMPUTER MANAGER

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Based in the Treasurer's Department at Dorking, this is a challenging opportunity for the right person to lead the Council's Computer Team. The present configuration is an ICL 2903 with EDS 60 Disc Drives, Direct data entry, line printer and card reader.

A large number of systems are being processed, with development of on-line enquiries now being undertaken. 37-hour working week with no shifts. Removal and settling-in allowances would be payable if you have to move house.

For an application form contact  
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Telephone: Dorking 5001 Ext. 228

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The employment package includes:

- \* Realistic Salary Levels
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Please write giving sufficient details to warrant a early interview, either in London or near your home to:-

Phil Clarke, Ref: KR18  
Key Appointments Limited,  
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30 Baker Street, London W1,  
stating on a separate sheet those companies to whom you do not wish your application forwarded.

Key APPOINTMENTS

### DATSUN U.K. LIMITED

ANALYSTS, ANALYSTS/PROGRAMMERS

We have a growing environment to work in a growth environment. We have expansion both in applications and hardware for new IBM 370/148 arriving in September 1978 to replace our 370/128. We are particularly interested in people with at least 2 years' experience in the following areas: (a) Data base (preferably DL/1) (b) Telecommunications (preferably CICS) (c) Systems analysis. Additional interest would be created in your application if there was experience in: (d) Main Frame or (e) Inventory Control or (f) Accounting Practices. We would pay salaries according to experience, but we do not forget any problems in this area. Benefits include: Non-Contributory Pension Scheme, subsidised Restaurant, Free medical insurance, Staff Purchase Scheme. Our working conditions are excellent, with good company relations. Apply directly in writing or by telephone for application form to: Personnel Department, DATSUN U.K. LIMITED, 1000 Road, Watlington, Oxfordshire. Tel: Watlington 1881. CLOSING DATE 18TH AUGUST, 1978.

SYSTEMS ANALYSTS/PROGRAMMERS required urgently

Leading European Management Consultancy Group are seeking experienced people for a variety of positions in the following areas: (a) Systems analysis (b) Data base (c) Telecommunications (d) Inventory Control (e) Accounting Practices. Please write fully in confidence to: D. K. Wright Organisation, 27 Stamford New Road, Atterham, Manchester. Also offices in London, Birmingham, Amsterdam & Toronto.

## MYRIAD APPOINTMENTS LIMITED

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### OIL IN CENTRAL LONDON?

Excellent opportunities exist for people keen to progress their careers within an expanding International Company providing a range of services to the oil industry in Europe, Africa, South America, the Middle East and Far East.

The central systems team is responsible for developing group systems distributed to overseas D.P. centres. Major development plans include the introduction of a Database on IBM 370 mainframes and a network of IBM System 34 computers throughout Europe.

### CHIEF PROGRAMMER

To £7500

The Chief Programmer will be responsible for project groups of programmers working on both 370 and System 34 projects. A good COBOL background is essential and a knowledge of Assembler and RPG II would be useful.

This position will be particularly attractive to those candidates able to demonstrate qualities of initiative and leadership who wish to advance their careers in a progressive environment.

### ANALYST/PROGRAMMER (COBOL)

To £7000

The Analyst/Programmer, reporting directly to the Projects Manager, will hold responsibility for systems pertaining to the Africa area of the group operation. Candidates should have a sound COBOL background, along with the ability to liaise with line management and produce results with a minimum of supervision. The position will be attractive to persons with proven analysis experience. Of programmers looking for an excellent opportunity to move into systems analysis. This position will require liaison with users in London and Paris, therefore candidates must be willing to undertake a limited amount of short duration travel.

### ANALYST/PROGRAMMER (RPG II)

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Two outstanding Analyst/Programmers are required to assist in the development of a number of very interesting System 34 projects. Candidates must have a sound background in RPG II and an ability to communicate with users at the highest levels of management. A certain amount of travel to Scotland, Holland and Norway is envisaged. The Company has exciting plans for future projects in this area and successful candidates can expect a most satisfactory career progression.

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A three-shift system is in operation, conditions of employment are excellent and include paid overtime, subsidised meals, four weeks' holiday, first-class sports and social club, and an attractive staff discount scheme.

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\* Enjoy 6 weeks' holiday + Bank Holidays + 6 privilege days

The School Examinations Department of the University of London requires a Senior Programmer who has had over 2 years' practical experience of programming in ICL Plan and COBOL, and an Analyst/Programmer who has had 18 months' practical experience of programming in ICL Plan and COBOL and experience of Systems and Program Design.

For further details contact Miss J. Stiller, Assistant Personnel Officer, School Examinations Department, 86/72 Ebury Street, London, WC1E 6EE. Telephone 01-636 6000, Ext. 30. Closing date for applications: August 25, 1978.



# BUCKS

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## PRODUCTION SYSTEMS SPECIALIST £8,000 + CAR ALLOWANCE

The company is making a considerable impact in the supply of total systems (hardware and software) for the control of production within manufacturing companies. Having recently secured two sizeable contracts, they now wish to enhance their production systems expertise at Senior Project Leader level. Candidates must have a thorough knowledge and practical experience of the whole production systems process covering parts explosions, stock control, scheduling, costing, etc. For the right person, the future career path will be into management; having the responsibility for systems development within this applications sector.

RW 31/1

## PROJECT LEADER c £7,500 p.a.

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LONDON W1Y 0HE**

**(THE ENTRANCE IS JUST  
ROUND THE CORNER IN  
MADDOX STREET)**

**THE PHONE NO. REMAINS  
01-499 4501**

The continued expansion in Hutchinson Scoggins Recruitment and the formation of Hutchinson Scoggins Contracts to handle contract assignments has necessitated larger offices.

If you are currently contemplating a career move or wish to obtain a lucrative contract (home and overseas) then call us. We are in the market to help you!

## ANALYST/ PROGRAMMER

**Up to £7,000 p.a.**

Based N.W. London

**Would you like to set up and develop your  
own commercial installation?**

**Do you want to take responsibility for your  
own actions, reporting direct to non DP  
senior management?**

**Do you have managerial aspirations and  
need an opportunity to prove your  
managerial worth?**

If you can truthfully answer all these questions "YES", try this for size.

A new 2803 installation using Cobol in a company making DP products, the subsidiary of a US company. Major DP involvement in the USA and unrestricted access to their expertise. Plenty of user interface and you are the recognised UK authority on DP.

You will be based in an accessible part of NW London and will receive a highly competitive emoluments package, including a salary of up to £7,000 p.a.

RW 31/4

Find out more by telephoning Tony Baker on 01-499 4501 during office hours, or on 01-445 3512 evenings and weekends.

## Business and Systems Analysts Advance Your Career With An Advanced Installation

### Project Leader To £7,600

This is an opportunity which will appeal to those who are project leaders already but would like more responsibility, or those who have a strong commercial systems background and are seeking a managerial role. It will be necessary to deal with all levels of management and some local travel may be necessary.

Typical teams led will consist of between 5 and 8 analysts; therefore it is important that candidates can demonstrate management abilities. At least 5 years DP oriented systems experience is anticipated.

**IBM 3000 HARDWARE  
NEW ON-LINE AND  
DATABASE PROJECTS**

**25 DAYS HOLIDAY  
FLEXTIME  
SUBSIDISED CANTEEN**

**CAREER OPPORTUNITIES  
EXCELLENT TRAINING  
SPORTS/SOCIAL CLUB**

### Senior Systems Analyst To £6,600

Will have the ability and desire to progress to the position of project leader in a short time scale. Initially they will either lead project groups of between 2 and 5 analysts or join larger teams headed by project leaders.

The successful applicants will deal with all levels of management and staff in the provisions of business and DP solutions. It is therefore important that they should be communicative and have a highly professional outlook. A systems experience of 3 years or more is anticipated.

There are also excellent opportunities available for those with less experience who wish to join a company with whom they may make their career. These positions are available largely through the growth of the DP department. The installation for which we are recruiting is part of one of the largest commercial organisations in the south-east. It has been shown that they are not afraid to introduce new technology and techniques, and are now one of the most advanced installations in the UK. A major TP network is operative and is scheduled for expansion. Staff development and training are given clear emphasis and opportunities for progression are excellent. Starting salaries are negotiable to the above dependent on experience and ability. Positions are based in Croydon in a pleasant environment.

These are openings to join a young and expanding team of systems professionals. To find out more telephone our CROYDON office or write quoting ref: CW 26-8H enclosing brief career details.

**01-686 9693 (24 HOUR ANSAPHONE)  
19, PARK STREET, CROYDON, CR9 1TN**

**061 236 9085 FAULKNER HOUSE  
FAULKNER STREET, MANCHESTER, M1 4YD**

**COMPUTER AND  
PROFESSIONAL  
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CONSULTANTS**



**CAPP ASSOCIATES**  
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**Computing  
Services  
Association**



**RECRUITMENT ADVERTISING**  
35 New Broad Street, London EC2M 1NH  
Tel: 01-588 3588 or 01-588 3576  
Telex No. 887374

### COMMUNICATIONS MANAGER CITY c. £8,000-£7,000



**LEADING EXPANDING LLOYD'S  
INTERNATIONAL INSURANCE BROKERS**

The job entails the efficient running of the telex and telephone departments, planning and installation of new systems and liaison with the GPO and private companies on all aspects of communications. Potential candidates, male or female, should have substantial experience as a Communications Manager and a thorough knowledge of all types of communications, with particular emphasis on telex, switchboards (preferably IBM 3750), message switches, facsimile, multiplexers, VDUs, paging systems, etc. Experience should also cover the installation and maintenance of telegraph/telephone circuits, both domestic and international. Salary range: £6,000-£7,000 per annum. Benefits will include free lunches, 4 weeks' holiday and free Life Assurance. Applications in strict confidence under reference CW 10674/CW will be forwarded unopened to our client, unless you list companies to which they should not be sent in a covering letter marked for the attention of the Security Manager.

CAMPBELL-JOHNSTON RECRUITMENT ADVERTISING LIMITED, 35 NEW BROAD STREET, LONDON EC2M 1NH

### County Treasurer's Department Computer Division

## SYSTEM SUPPORT PROGRAMMERS

(Posts C180 and C213) £4245 to £5073

(Readvertisement - previous applicants need not apply)

The successful applicants will join a team responsible for the operating system, development of systems support software, and assisting with investigations into a replacement for the present installation (ICL 1904S (256K) with extensive communications facilities).

It is expected that the applicant will have a relevant University Degree together with at least one year's post graduate experience in an ICL 1900 GEORGE 3 installation, and have a working knowledge of COBOL, FORTRAN and PLAN.

Contributions towards removal and disturbance expenses will be payable in accordance with the Council's Scheme.

Requests for application forms stating post number to County Treasurer (Ref: RFB), Suffolk County Council, Milner House, Rope Walk, Ipswich. Closing date for completed application forms 31st August, 1978.

**Suffolk County Council**

### THE UNIVERSITY OF SHEFFIELD UNIVERSITY COMPUTING SERVICES

Applications are invited from men and women graduates for a post of

### PROGRAMMER

In the University Computing Services.

The work will involve the writing of

applications programs for other departments of the University and the provision of programming assistance for members of those departments. Candidates should have an interest in

programming in high level languages

and experience in first four points of

Other relevant Staff: 15 Scale: £3185-£3995 a year. Scale rises to £4801 a

year and is under review annually.

Applications now copy including the

name and address of two referees to the

Registrar and Secretary, the University

Sheffield S10 2TN by 25

August 1978. Quota Ref: R177/88

01-995 3883

FREEPOST LONDON W4 3BR

## Development and Operating Opportunities

**Hayes, West London**

**Salaries up to £5720 per annum (including London Allowance).**

The British Transport Docks Board Computer Centre provides computer systems development and operations services to 19 ports and other port industry organisations. The Centre, established in 1968, is currently undertaking a major review of the ports' computing requirements in preparation for the replacement of its large mainframe computer. Mini-computers with visual display terminals and communications facilities have recently been installed at major ports to link up with the equipment at the computer centre. The Board now requires the following staff to facilitate the introduction of the new equipment, to work on a number of interesting new projects and to provide support for existing systems. This provides the opportunity to join a professional and friendly team working to high standards. The Computer Centre is easily accessible from the M4 motorway and the British Rail Western Region Hayes and Harlington station.

Conditions of service include 32 days holiday per annum (including Bank and Public Holidays), a sick pay scheme, pension scheme and 60p per day Lunchroom Voucher.

### Systems Analysts

Responsible for systems analysis, design, development, implementation and maintenance activities and liaison with programming, operations and user staff. Previous experience of systems work is essential.

### Programmers

Cobol experience essential.

### Operators

The Operators work on a shift basis (for which additional payments are made) and will be required to operate the Centre's present ICL system 4 computer, its eventual replacement, and the data transmission and ancillary equipment. They will also undertake data control duties, which include liaison with users, assembly/disassembly of computer runs and despatch of output. Previous experience of similar work is essential.

Intending applicants are invited to contact Tim Bever, Systems and Programming Manager, or Joe Dodin, Computer Operations Manager, on 01-573 5045 or write to British Transport Docks Board, Computer Centre, Hayes Road, Southall, Middlesex, UB8 3NE.

**BT British Transport  
Docks Board**



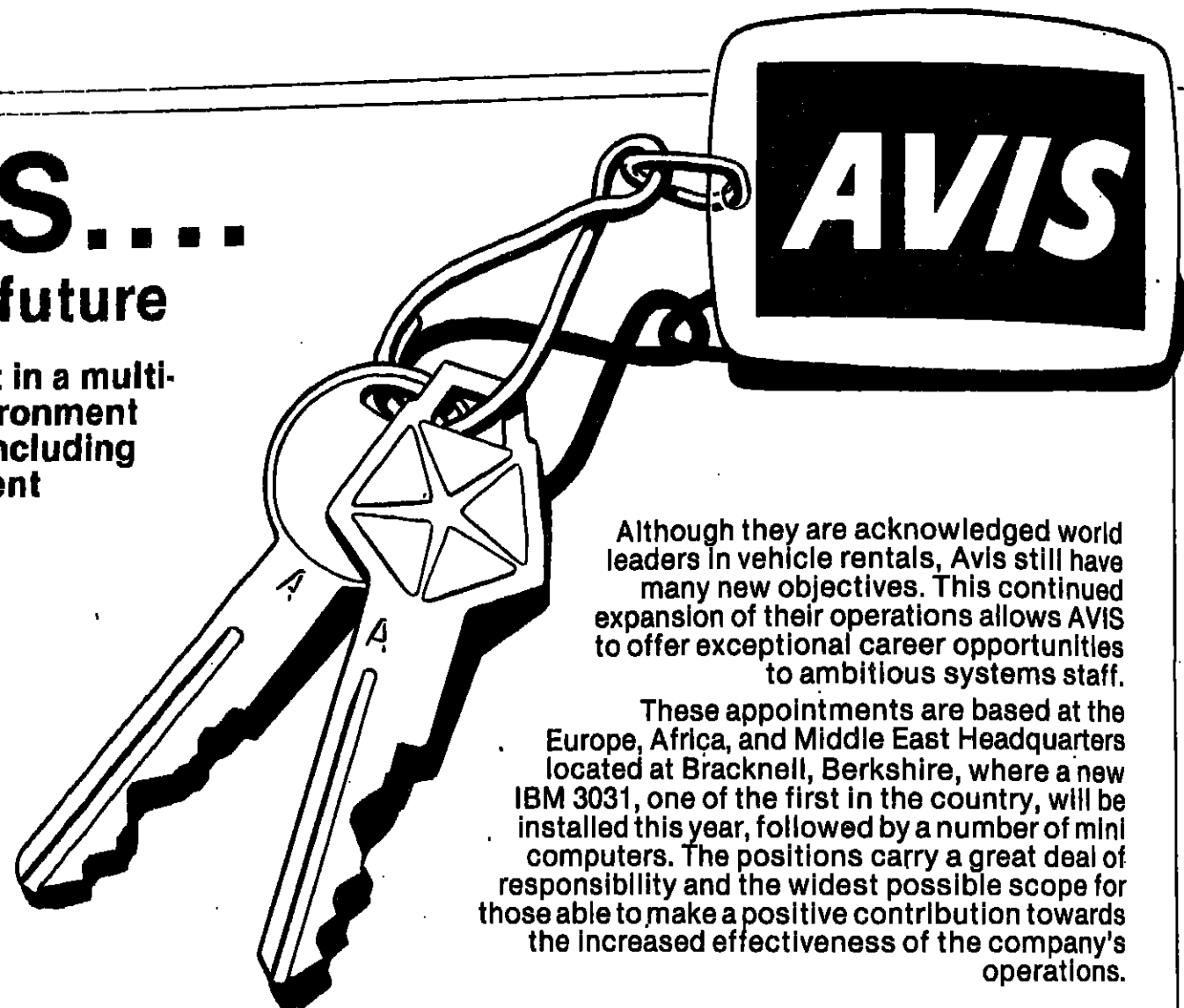
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... the Keys to your future

- ★ Varied systems development in a multi-national, multi-currency environment
- ★ Superb working conditions including open plan offices and excellent subsidised restaurant
- ★ Attractive COMPANY CAR scheme for senior positions
- ★ Start salaries up to £7,000
- ★ European travel

Your experience will be at least two years of systems design and implementation, coupled with a flexible approach and the ability to "think on your feet". A decided asset would be exposure to one of the following: mini-computers, distributive processing, IBM mainframes, financial and/or general commercial systems.

People with less than the above experience, but who feel they have the potential to succeed in this professional environment, are also invited to apply.



Although they are acknowledged world leaders in vehicle rentals, Avis still have many new objectives. This continued expansion of their operations allows AVIS to offer exceptional career opportunities to ambitious systems staff.

These appointments are based at the Europe, Africa, and Middle East Headquarters located at Bracknell, Berkshire, where a new IBM 3031, one of the first in the country, will be installed this year, followed by a number of mini computers. The positions carry a great deal of responsibility and the widest possible scope for those able to make a positive contribution towards the increased effectiveness of the company's operations.

All contact through Capp Associates CROYDON office, telephone or write quoting ref: CG 181-8S.

COMPUTER AND  
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**CAPP  
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**ASSOCIATES**  
01-686 9693 (24 HOUR ANSAPHONE)  
19, PARK STREET, CROYDON, CR9 1TN

Computing  
Services  
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Glaxo Holdings Limited

## Shift Leader

(Two shift system)

Not Less Than £4600 + Company Bonus

A vacancy has arisen for a shift leader to work in this Company's Computer Centre located at Graham Street, London, N.1.

The installation consists of an ICL 19031 (128K) ED5004 MTs, etc., supporting a VDU and RJE communications network. In addition a Hewlett Packard 3000 (1/2 megabyte) will be installed in October.

The successful candidate is likely to be in his or her mid-thirties, educated to 'A' level standard, have over 3 years' 1900 operating experience, be conversant with George II and ICL software. Experience of communications equipment would be an additional advantage.

The remuneration indicated above includes Shift and London Allowances. Fringe benefits include subsidised staff restaurant, sports and social club, 4 weeks' holiday and free car park.

For an application form please write to Miss S. G. Ross, Glaxo Holdings Ltd., Graham Street, London N1 8JZ, or telephone Miss T. Hayne, 01-493 4060, ext. 237.

## PROGRAMMER/ SYSTEMS SUPERVISOR

S.F.I.A. Educational Trust, a charity, have recently installed an NCR 8260 to deal with the termly payment of school fees.

We are currently seeking an experienced Programmer to join and lead our small but rapidly expanding D.P. installation (expansion in both systems applications and hardware editions).

Candidates should have a knowledge of Cobol 74 and time operating systems.

Commercial salary will be dependent upon age and experience, and a company vehicle will be provided. To obtain an application form please write to:

Mr. D. M. Haines  
S.F.I.A. Educational Trust  
10 Queen Street, Macclesfield, Cheshire.  
Or Telephone Macclesfield 44201

## PROGRAMMER

A graduate with a degree in Mathematics or Computer Science, or equivalent, for a permanent position in a multi-national company. The successful candidate will be responsible for the design, development and testing of computer programs. The position offers a competitive salary and excellent career prospects. For an application form please write to: Mr. J. H. Smith, Personnel Department, 10, Park Street, London W1P 1TN.

## PROGRAMMERS OPERATORS

A permanent position for a programmer/operator. The successful candidate will be responsible for the design, development and testing of computer programs. The position offers a competitive salary and excellent career prospects. For an application form please write to: Mr. J. H. Smith, Personnel Department, 10, Park Street, London W1P 1TN.

## International Opportunities at our European Software Technology Centre

Salaries in the range £3500 to £7500  
Bedford based

In our European Software Technology Centre, which is being expanded to handle work for the whole Texas Instruments corporation world-wide, we have the following career opportunities offering the chance to work on an international basis with the most advanced technology in the field. They provide the chance to travel to Europe and to the company's sites in Dallas and Houston in the USA. The option to transfer overseas at some future date is a strong possibility.

## Microprocessor Software Engineers

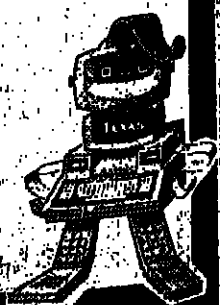
with a degree in mathematics, computer science and preferably some assembly programming experience. A knowledge of PASCAL would be an advantage. Self-motivation and the ability to communicate well at a technical level are essential.

## Fortran Programmer

To work in the design automation area developing large suites of programs on our corporate information centre IBM 370/186 complex. A science degree and some experience of technical Fortran programming are essential.

Salary reviews and promotion prospects are entirely merit based and benefits include generous assistance with relocation expenses where appropriate, profit sharing, assistance with obtaining mortgages, subsidised staff restaurant, health insurance and pension plan.

For an application form, please telephone Bedford 67466, ext. 3226 or 3227, or write to Ann Stevens, Personnel Department, Texas Instruments Limited, Marlow Lane, Bedford.



TEXAS INSTRUMENTS  
LIMITED

هذا من اجل



Data Processing Recruitment Consultants

## European Data-Systems Manager Berkshire (European+US Travel)

Salary: Circa £8 - 9K + Expenses and Relocation

A leading US Electronics and Data Products Corporation has retained Logistix to assist in recruiting a European Systems Development Manager to be based at their Berkshire European Headquarters with total responsibility for Systems Development for all their European offices. This very important appointment will appeal to those who enjoy overseas travel in particular to the United States and throughout Europe.

The company is currently planning a comprehensive European network comprising mainframe and mini computers with a data-link to their host IBM 370/155 in California. It is anticipated that the successful candidate may be instrumental in advising on the configuration of hardware to replace the present stand-alone mainframe.

A five year forward planning computerisation programme has been drafted and it will be the responsibility of the newly appointed Systems Development Manager in co-operation with the U.S. development team to enhance and further develop broad-based financial, inventory control and communications systems for implementation throughout Europe and the U.K.

This unique opportunity will ideally suit a self-starter with a strong mini computer background and solid systems design experience gained either with a major software house or a sophisticated user using linked computer systems. Familiarity with COBOL could be useful, however the decision for its use has as yet not been finalised. The successful candidate will be joining a large Corporation whose products are marketed in over 100 countries with over 11,000 employees worldwide, producing sales of \$300 million in 1977; sixty per cent of those sales were attributable to products not in existence 5 years ago, developed through technical commitment to main-stream and tangent technologies. The high salary reflects the importance which our client places on the filling of this appointment and important fringe benefits normally associated with a major US Corporation are of course provided. Interviews will be held within 2 weeks of the publication of this advertisement and it is anticipated that an offer will be made within ten days of interview.

## Coral 66 Programmers Contract-South Coast

to £300 p.w. (9 months)

One of Britain's foremost Hardware design and development groups urgently requires three additional team members for one of its CORAL 66 projects. Whilst the hardware selected is DEC PDP 11 it is not essential that applicants are conversant with RSX-11M although it will be necessary to become familiar with that operating system. Of prime importance is very sound current CORAL 66 experience (minimum 18 months) and the willingness to locate Monday to Friday at the company's south coast headquarters. This unique opportunity is likely to appeal to those interested in frontier technology of a demanding and stimulating nature. Only applicants available at relatively short notice can be considered for these posts. There is a definite possibility that the project will extend beyond 9 months and could if desired lead to a permanent position. Informal interviews will be held as soon as is practicable possible with a view to commencement prior to mid August.

## Senior Mini Specialists Holland

Salaries: £9.5-15K.

Our Client is a major International Systems and Software Development Group recognised as Market-leaders in their field. Owing to continued expansion in a wide variety of applications areas including Data Communications, Message Switching, Computer Networking and Mini Computer Software, a significant number of experienced permanent personnel are urgently required.

Emphasis will be placed on technical achievement and in-depth experience in the areas of activity outlined above. Whilst a degree or equivalent qualification in either Computer Science or Mathematics is desirable, significant relevant experience will be considered in lieu. Of essence is a solid Assembler background within a Mini-computer environment. Project locations throughout the Benelux provide a wide and interesting environment which include Amsterdam, The Hague and Rotterdam. Of prime importance is demonstrable enthusiasm to relocate to the Netherlands for an extended period. Every assistance will be given in relocation, including cost of removal of all personal effects, initial accommodation expenses and a resettlement advance. Interviews will be held in London during August and offers of employment will be made within 10 days of interview.

## IMS+Database Holland+London

Salaries: Holland £15K+ London £7K+

One of the World's foremost Software Specialist Groups (not body shop) with H.Q. in the U.S. have asked Logistix to identify top calibre IMS programmers up to Team Leader level and beyond for permanent positions in Holland and London with the option to transfer for a limited or extended period to the U.S.

Suitable applicants must have current IMS (DB or DC) applications or systems programming experience using COBOL, PL/I or BAL with DLI. It is anticipated that candidates will have worked with IMS applications for 2 years or longer.

Applications cover on-line enquiry systems, banking, sales ordering, stock/inventory control, budgeting and forecasting etc. The scope of projects and the prestige of working with this acclaimed Market Leader will be certain to appeal to the most demanding career minded individuals. The high salaries reflect the prominence which our Client places on the acquisition of these key personnel who are certain to rise rapidly to Consultancy or Management levels.

Logistix, Freeport 32, London W1E 3YZ  
01-491 4636 Telex 29800  
(Reverse charges)



Avon House, 366 Oxford Street, London W1N 9HA

## HAVE YOU TRIED ... CUTTING CORNERS?

I am a PROGRAMMER/ANALYST/OPERATOR  
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looking for Employment in the

area

Name

Address

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Cut out and post to

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KENT HOUSE, 87 REGENT STREET, LONDON W1R 7HF  
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Computing  
Services  
Association

## CONTRACT SYSTEMS ANALYST

South Herts.

We have an urgent requirement for a contract Systems Analyst with a sound professional background to join a client on a long-term basis. Applicants must have good commercial IBM experience and be available to start immediately or within the next 2/3 weeks.

For more information ring:  
(from 2 p.m. Monday, 7th August, onwards)  
**HAYMARKET COMPUTING LTD.**  
Tel: Cuffley (Herts.) 4130  
up to 7.30 p.m.



The University of Aston in  
Birmingham  
Computer Centre

## SYSTEMS PROGRAMMER

An ICL 19045 provides the main service for the University and the work will involve the maintenance and development of the systems software provided. Applicants must hold a degree or equivalent. Salary within the Other Related IS Scale - £3188 to £5282 per annum.

Application forms available from Mr A. G. Rose, Staffing Department, The University of Aston in Birmingham, Castle Green, Birmingham B47ET, quoting ref. no. 0/086/CW.

## SYSTEMS ANALYSTS

£8,000+

A relatively new D/P department with exciting new development plans in progress, requires systems analysts with around 18 months - 2 years experience, preferably in a commercial environment. A programming background is not essential.

## SYSTEMS ANALYST

£6,000+

N.W. LONDON

A substantial manufacturing Co. has a vacancy for a Systems Analyst. Knowledge of PL/I programming, experience of Data/Floppy Disk systems, software provided. Applicants must have experience of commercial applications from feasibility study, through to implementation, and have a good understanding of business organisation, systems and objectives.

## PL1 PROGRAMMERS

To £8,500

A large progressive Co. with an IBM mainframe offers exciting demanding positions for ambitious PL1/COBOL/PLAN/ASSEMBLER or BASIC programmers. Lots of development work is planned which will provide first class opportunities for both job and career development. Annual bonus. Flex-time, etc.

## AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers,  
119, Oxford Street, London W1A 1PA Tel: 01-434 1106

## BASIC PROGRAMMER/ANALYST-£5K PLUS

If you like the idea of working for a small Software House in Mayfair, and have 2 or more years' experience programming in commercial BASIC - we'd like to hear from you.

There are six of us at present, and we work in APL and BASIC on time-sharing systems and minis. Clients range from small businesses to large multi-national with interactive systems access from all over the world.

If you need responsibility, and variety, and enjoy an informal environment, call:

Ramilly Coking at Brian Drury

01-493 6172

Computer Shop opening shortly in West End of London requires a

## MANAGER

who must be experienced in computer sales and capable of developing a national chain. Please apply to: 80a, Weymouth, Computer Weekly, Dryden House, Stamford Street, London SE1 1LU.

## ENGINEERS

£7000+

Hedwards exp. on any mainframe or mini computer. NO MECHANICALS. 01-493 6172

FREEPOST PERSONNEL WA 36R



# WEST GERMANY 55,000 D.M.

+ Substantial Benefits Package

PERMANENT POSTS - LARGE INSURANCE COMPANY

MAJOR PROJECTS ON NEW 3033

## AN EXCEPTIONAL OPPORTUNITY FOR TWO DATA PROCESSING PROFESSIONALS

My Client is one of the largest Insurance Companies in Lower Saxony. The Company's history goes back 250 years. They are financially guaranteed by the State, but operate exactly as a privately owned Company. The Company has modern offices, provides excellent working conditions, and back up basic salaries with outstanding social benefits. All cultural, sports and shopping facilities are close at hand. The openings described below are permanent — relocation expenses will be met by the clients.

### SYSTEMS PROGRAMMER

Your first job will be helping replace a large 168 with a 3033. The present system supports 150 terminals both local and remote. Your knowledge of large IBM mainframes will help ensure this upgrade is as smooth as possible. The greater your abilities on this type of architecture then the more varied will be your field of responsibility. Knowledge of German is not a prerequisite but any you have will make settling in easier.

RW31/5

Telephone GEOFF MARSH on 01-499 4501 any time (24-hour answering service), for more information. If you prefer, you can ring him at home on GARSTON 79536.

### SYSTEMS ANALYST

Are you Project Leader material? Would you like to earn a realistic salary for your efforts? Is your spoken and written German up to scratch? A proven record of completed projects preferably with some Insurance business exposure could secure you this leading post. You will be working on major new Systems with early promotion to Project Leader if you make the grade.

RW 31/6

## CHALLENGES IN REAL-TIME SOFTWARE

North London

### TEAM LEADERS

Up to £7,000 + Relocation

### SENIOR PROGRAMMERS

Up to £6,000 + Relocation

Our client — a major international corporation — is undertaking a large real-time Development project which is expected to have a major impact on national life in the eighties. The ultimate operational system will be genuinely real-time providing an on-line service 24 hours a day, every day of the year. The highest degrees of technical integrity are therefore sought and, as you may imagine, the hardware includes many interesting specials. The software development function currently has vacancies at senior levels to produce software concerned primarily with on-line data collection, fault analysis and peripheral handling on minis and micros, and data communication with a mainframe. All the openings below offer a real challenge for the dedicated software professional with his technical sights set high and seeking the stimulation of working with other technical high fliers.

Specifically our client is seeking the following people:

1. A SENIOR SOFTWARE PROGRAMMER with a good knowledge of processor hardware to head a small group of three people developing a maintenance system. Ref: RW 31/7
2. A SENIOR APPLICATIONS PROGRAMMER with experience and proved technical capability to join an applications team engaged on systems for interactive data analysis. Ref: RW 31/8
3. A TEAM LEADER initially to join a team of six engaged on the design of a peripheral handling system. Subsequently the person appointed will lead the implementation of the system. Ref: RW 31/9
4. A TEAM LEADER to take charge of a team of four engaged on the technical design of software to drive interactive terminals. Ref: RW 31/10
5. A TEAM LEADER to be responsible for the development of applications programs for interactive analysis. Ref: RW 31/11

All the above posts are situated in residential North London, within easy access to housing at all price levels and abundant social amenities. The positions all carry competitive salaries and large company fringe benefits. If you have practical experience in any relevant field (e.g. process control, command and control systems, or systems software design) we should be pleased to hear from you.

Telephone TONY BAKER on 01-499 4501 any time (24-hour answering service), quoting appropriate reference number, for more information. If you prefer, you can ring him at home on 01-445 3512 evenings or weekends.

**hutchinson-scoggins recruitment**  
47/48 New Bond Street (entrance in Maddox Street) London W1Y 0HE Telephone 01-499 4501

### Hardware & Software Support

Middlesex & Travel £7,000-£8,000 K.

The Electronics Division of a Multi-National Company based in Middlesex need to increase their support teams on MINI Hardware and Software Projects.

Candidates with a background of Hardware, Software or Systems Support in Communication, Networks, Mainframe Interfacing or similar fields are invited to apply.

Career development and stimulus will certainly be offered through working with Distributors on the widest involvement of projects, product, and sophisticated communications network.

Additional responsibilities will include Product Evaluation, and Testing, Management of Training Resources, Establishing Standards, Pre and Post Sales Support and reasonable travel throughout Europe and further afield.

Ref. CW 31/1

### Analysts

up to £8,000 + car

NCR COBOL/NEAT 3

London

An exciting opportunity has developed for ambitious Programmers and Analysts to join a medium size, expanding computer company involved in automobiles and finance industries.

Our clients computer operations are based on NCR CENTURY 75, current plans include upgrading to a CRITERION Development is in progress on an interactive on-line communications system using audio response equipment on a nationwide basis.

Programmers are currently required with one year's COBOL on the NCR 8000 series. Experience of IMOS would be advantageous, we also need Programmers with 18 months NEAT 3 on Century machines.

Continual company growth based on the development of external customer's systems, guarantees excellent prospects for suitable employees.

Ref. CW 31/2

### SA/Programmer Programmer Senior Operator

Dublin

£4,500-£7,000

Our client, a major international company with an expanding DP department require the above personnel for future development. The company uses IBM hardware for processing its commercial and financial applications.

They require at least two years' COBOL programming experience for both positions plus exposure to systems design for the Analyst Programmer job. The Operator will need sufficient experience to be in charge of day-to-day running.

In addition to excellent salary and fringe benefits, relocation expenses will be paid where applicable.

Ref. CW 31/3

### Technical Writers

Switzerland up to £16,000 p.a.

We wish to recruit 2 experienced technical writers for permanent positions with our Swiss clients.

The successful candidates will join large project teams, working up to 30 man years communications systems. Each technical writer will report to his project manager. The main responsibilities will include working to tight time scales, on the preparation of documentation and literature on the implemented projects for user purposes.

Candidates must have a proven track record in technical writing, and be prepared to work on their own initiative, servicing the needs of the project development teams in a highly progressive company in the communications field.

Ref. CW 31/4

### Systems Consultant

up to £7,500 + car

### Systems Engineers

up to £7,000 + car

Slough

Manchester

Exciting opportunities have arisen in a highly successful American corporation specialising in communications and information handling systems for high level support analysts.

Working in the nerve centre of a communications support team, successful candidates will be required to advise and trouble-shoot on our clients IBM Compatible Communications Hardware.

Excellent conditions of employment include travel in and out of the U.K., top relocations, expenses and financial aid for successful candidates with a background in Data Entry Systems, high level languages and a knowledge of a European language.

Ref. CW 31/5

### Consider the benefits of . . .

- \* Working for one of the most professional software houses in the U.K.
- \* Working in a career conscious company
- \* Working near Baker Street station
- \* A basic salary to £7,000 per annum
- \* Annual bonus (minimum of 1/12th of salary)
- \* BUPA, non-contributory pension scheme
- \* Working on a variety of systems and locations

Utilising your COBOL experience to date, working in a GCOS/TDS environment contributing to the success and professionalism of this member company of one of the largest international consultancy groups.

Ref. CW 31/6

### Chief Programmer

NW1 UP TO £8,000 p.a.

British Home Stores require a Chief Programmer for their Marylebone Road Head Office, to take control of a team of fifteen Application Programmers.

Apart from the day to day administration, other important aspects are to ensure that work is completed on time, and is technically sound, plus Recruitment and Training.

The successful applicant will also be expected to play a leading role in the implementation of improved programming techniques and interactive programme development.

The installation is an IBM 370/146, to which will shortly be added an IBM 3031.

Ideally candidates will have programming experience in an IBM environment, using ASSEMBLER, COBOL and DL/1.

This position will attract people who wish to combine a future in application programming and management responsibilities.

Ref. CW 31/7

### RPG II or COBOL Programmers

Irish Midlands

c. £6,000

Our client, a manufacturing company accessible to Dublin, requires experienced programmers for their up-to-date installation.

Our client requires a minimum of 2 years' programming experience in either RPGII or COBOL. Applicants will be given training where necessary. Systems experience awaits the successful programmer who has a good commercial manufacturing background.

The company offers these outstanding opportunities to secure very interesting work with great scope for the successful candidates who have the initiative to progress within an expanding organisation. In addition to a competitive salary and excellent working conditions on a new installation, there is a life assurance and pension scheme. Assistance will be given with relocation costs where applicable.

Write or telephone Dublin Office for further information.

Ref. CW 31/8

### Consultants

Reading £6-£8,000 p.a.

A major international Software House require Consultants or Systems Analysts who have experience on Mainframe and Minis for their Reading office. You will be responsible for:

- \* Advising clients upon their future computing requirements.
- \* Ensuring that clients choose the hardware best suited to their needs.
- \* Assessing the practical problems involved in implementing advance Computer Systems.
- \* Working with clients to ensure that systems are installed successfully.

Therefore we are looking for experienced Systems Analysts who have the confidence to advance into consultancy work, and who can communicate effectively with senior management. You should also have experience in either General Accounting, Production Control or Distribution.

Ref. CW 31/9

## Central Computing Consultants

KINGSTON: 44 Wood Street, Kingston upon Thames, Surrey, England. Telephone 01-549 3212. Telex 27950

DUBLIN: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone 789577 (5 Lines)

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لدينا من اهل مصر



**occ computer personnel limited**

**Analyst Programmers**  
**c £14,000 tax free plus benefits**

Four analyst programmers are required for a new computer department being established at a leading motor distributor in Saudi Arabia, which is due to take delivery of an IBM 370/115 in March 1979. The systems will initially be a mixture of batch and on-line, running under CICS and DOS/VS and written in RPG II.

**Benefits**

- ★ Free furnished accommodation
- ★ Free company car
- ★ Free medical treatment

**Environment**

- ★ Leading motor distributor
- ★ New 370/115
- ★ New DP department

**Requirements**

- ★ Solid systems and programming experience
- ★ At least 18 months' practical experience of CICS, DOS/VS, RPG
- ★ Self motivation
- ★ November start

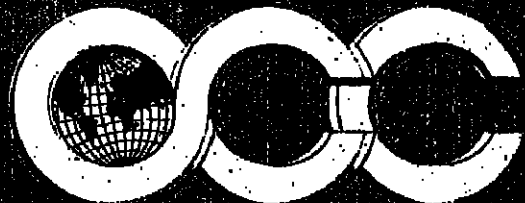
Successful candidates will ideally have at least 18 months' practical experience of CICS, DOS/VS and RPG. There will be a high degree of user involvement and the positions will suit self starters. Experience of the distributive side of the motor trade would be an added advantage.

These positions are on bachelor status, enjoying the following benefits: 30 days' leave and 15 days' public holidays per annum. Free furnished accommodation of good standard with free electricity and water. Free medical treatment and company car.

**FINAL CLIENT INTERVIEWS IN LONDON AUGUST 21-23**  
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ICL 2903

In order to increase the efficiency of the computer services to our rapidly expanding group of companies we have recently installed a new ICL 2903, for which we need two senior people (male or female) to join a young established team located at Silenight Holdings Limited, Wellhouse Mill, Barnoldswick, Colne, Lancashire.

**COMPUTER MANAGER**  
(c £5,000 + BONUS)  
QUALIFICATIONS:

- Ideally aged under 35 years
- At least 3-5 years computer management
- Proven programming record in ICL and COBOL
- Systems analysis and design
- Knowledge of O and M analysis
- Overall, an ability to lead and establish a loyal, enthusiastic team on the threshold of developing new systems and equipment

**PROGRAMMER/ANALYST**  
PROFICIENT IN:

- Systems analysis and design
- Programming using COBOL
- Operating/compiling/testing ICL 2903
- Work Scheduling
- Understanding O and M analysis

**THE REWARDS:**

- Negotiable salary plus annual bonus
- Excellent working conditions in newly-furnished department on the edge of the beautiful Dales Country
- Generous relocation expenses if required
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Please telephone John Roberts  
(or his secretary)  
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Barnoldswick (0282) 812711.

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North Home Counties c. £6,000 plus

With project experience since first degree and with leadership potential.

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With good computer science degree. Our client offers advanced work on communication based systems, using the most recently announced hardware, micro computers, intelligent terminals and file retrievals.

For application form telephone John Nolan on 01-584 4049 or 01-584 8476 or write Quoting Ref. G.1800 to:

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30 Thurloe Place, London SW7 2HO  
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**COMPUTER  
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Senior Operator for new 8800 installation shortly to become operational at our new Head Office at Chipping Wotton near Banbury, Oxon.

Applicants should have at least 12 months experience on this or similar equipment and should be capable of developing for the Operations Manager in his absence.

Day shift, only antitoxin (until further notice).

Excellent commencing salary and career prospects for right person. Full day week, five day conditions of service include pension scheme benefit and staff discount scheme.

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**COMPUTER WEEKLY**

العدد 14



# SET YOUR SIGHTS HIGH - REACH THE TOP!

★ Why not consider moving to a more rural area - relaxed country atmosphere

★ Take a step up the ladder - Learn new techniques - improve your prospects

★ Increase your salary - consider the perks!

## ANALYST PROGRAMMERS

HERTS

One of the country's leading retail organisations seeks analyst programmers to work at team leader level on the development of new batch, interactive and distributed systems. Company currently retain Burroughs B1700-4700 series hardware and are also investing in PDP 11 equipment. They seek persons with 2 years' exp in design, analysis and/or programming (ANY LANGUAGE) to make a career with them.

- ★ Universal opportunity to learn new languages and get on to MINI computers.
- ★ Significant user contact
- ★ RELOCATION expenses
- ★ Salary to £6150

REF. 1655

## PROGRAMMERS

MIDDX

A major organisation in the retail trade is now pursuing further interests in a rapid rate, retaining NCR Century equipment with new Croom V0550 scheduled for delivery at the end of the year, they seek programmers with 3 years' COBOL experience on any machine for their major stock control systems utilising TOTAL database.

- ★ Plenty of new development work
- ★ Training in database
- ★ Sports and social club in beautiful ground, heated outdoor pool, squash court, etc.
- ★ Excellent perks - LVs, discounts on co. goods
- ★ Salary to £6250

REF. 1655

## PROGRAMMERS

HOLLAND

Prestige world wide manufacturing company location in Amsterdam seeks programmers with minimum 2 years' COBOL or ASSEMBLER or PL/I and Assembler experience to become involved in the development of sophisticated airline communications system.

- ★ Co. offers
- ★ Excellent prospects for career path
- ★ Varied work of highly interesting nature
- ★ First-class perks including RELOCATION expenses
- ★ Salary range £11-£13000 neg.

REF. 1653

## MINI PROGRAMMERS

HOLLAND &amp; BELGIUM

We would like to hear from programmers on behalf of our clients, with good MINI exp. If you have had at least 2 years' experience of ASSEMBLER on any mini computer - contact us immediately to discuss on-going projects in the above countries.

- ★ Accommodation and expenses paid by the company
- ★ Renewable assignments
- ★ Excellent scope in a variety of areas
- ★ Salary £12000 neg. A.A.E.

REF. 1603

## CHIEF PROGRAMMER

LONDON

Our client, a major national retail organisation seeks a chief programmer in take control of 15 programmers. Company retains IBM 370 to which a 3031 will be added shortly. Ideal applicant will have at least 5 years' programming experience in an IBM environment using ASSEMBLER, COBOL and PL/I. Job entails full management responsibilities and person will be expected to play a leading role in implementation for improved programming techniques.

- ★ Co. offers
- ★ Progressive organisation
- ★ Flexible hours
- ★ Full scale of projects
- ★ Excellent fringe benefits which include free lunch and discount on company products
- ★ Salary to £8000

REF. 1674

## PROGRAMMER

SURREY

World leaders in their field, this organisation has an impressive varied range of business interests and is rapidly expanding. At their computer centre they have IBM 370, mini computers and additional new equipment scheduled, consequently needing programmers with min. 18 months' COBOL, ASSEMBLER or RPGII exp. to work as part of a project group.

- ★ Opportunity to go into analysis, with good scope for analysis
- ★ Fantastic working conditions, including large sports and social club
- ★ Paid overtime, flexi-time, insurance cover
- ★ Subsidised staff restaurant
- ★ Salary to £5600

REF. 1672

## PROGRAMMER

MIDDX

One of the most significant forces in the computer services industry in the UK, our clients provide a comprehensive range of services to clients worldwide, retaining IBM 370/158 co. seek programmer with min. 18 months' COBOL and/or PL/I exp. They offer:

- ★ Moves with programming into systems analysis of sales support or join one of their specialist groups
- ★ Chance to move on to MINI computers
- ★ Located within easy reach of London
- ★ Relocation expenses
- ★ Salary £6500

REF. 1451

## IBM PROGRAMMERS

KENT

Our client, an international pharmaceutical company seeks programmers to join their rapidly expanding DP dept. They retain IBM 370 and require people with minimum of 12 months' COBOL exp., preferably under OS. Company offers excellent opportunities for movement into systems analysis, design and software support.

- ★ Co. offers
- ★ Full training in TP and IMS Database
- ★ Flexi hours
- ★ Excellent facilities for career development
- ★ First-class perks which include sports and social club, sub. restaurant, pension and sick schemes.
- ★ Salary to £5600

REF. 1619

## MINI PROGRAMMERS

LONDON

Prestige company operating on a global scale are recruiting persons with 1-3 years' experience on ANY MINI ASSEMBLER to work in their new modern city offices. Having large DEC PDP 11 and BASIC + experience. This hardware is newly installed and thus offers a chance to become involved in the development from the beginning. Co. offers

- ★ Wide range of interesting and new projects
- ★ Flexible hours
- ★ Excellent career prospects
- ★ Annual bonus
- ★ Salary £8000

Ref. 1478

## SYSTEMS ANALYST

LONDON

Our client, a prestigious Merchant Bankers are seeking a Systems Analyst who has financial/banking environment experience. They retain IBM 370 under OS but will consider other hardware experience. Co. offers

- ★ Full working benefits including subsidised mortgage
- ★ Excellent working environment
- ★ Job security with prestige concern
- ★ Salary £7500

REF. 1594

## PROGRAMMERS

ESSEX

Management services division of major British group with annual turnover of almost £1,000m seeks COBOL programmer with minimum 2 years' IBM or ICL COBOL within a project team. Programmers will become involved in program design, coding, testing, documentation and maintenance as well as assistance in systems implementation. Co. offers

- ★ Comprehensive range of applications
- ★ Opportunity to move to more advanced technical projects and a variety of languages and machines
- ★ Paid overtime - flexi hours - sub. restaurant, amongst many of the excellent perks
- ★ Relocation expenses
- ★ Salary to £5600

REF. 1624

## JUNIOR PROGRAMMER

LONDON

Multi-national company retaining large IBM 370 hardware requires programmers with at least 12 months' ASSEMBLER experience to join highly professional team. They are currently developing a major sophisticated on-line systems Co. offers

- ★ Highly progressive organisation
- ★ Continued development with a well planned schedule
- ★ Good promotional prospects
- ★ Excellent benefits including cheap travel
- ★ Salary to £8000

REF. 1290

## MINI PROGRAMMER

HANTS

Our client is a major British company with business interests in many areas. They seek programmers with at least 18 months' DEC PDP 11 and BASIC + experience. This hardware is newly installed and thus offers a chance to become involved in the development from the beginning. Co. offers

- ★ Wide range of interesting and new projects
- ★ Flexible hours
- ★ Excellent career prospects
- ★ Annual bonus
- ★ Salary £8000

REF. 1586

## SYSTEMS ENGINEER

W. GERMANY

Worldwide manufacturing company with offices in Frankfurt seeks engineer for sophisticated communications systems. Ideal applicant should have in-depth exp. of communications and message switching on any MINI. Good knowledge of GERMAN is essential. Co. offers

- ★ Relocation expenses
- ★ Good career prospects with excellent growth potential
- ★ Generous fringe benefits
- ★ Salary to £15000

REF. 1578

## SENIOR PROGRAMMER

OXFORD

Our client is a major supplier of construction materials throughout the UK with turnover exceeding £200m. Running a modern computer centre and operating an ICL 1901T (upgrading shortly) they wish to appoint a Senior Programmer. Successful applicant will have comprehensive COBOL experience with PLAN and FILETAB as well as

- ★ Working on own initiative with minimum of supervision
- ★ Opportunity to work in small friendly dept.
- ★ Relaxed picturesque surroundings not too far from the beautiful city of Oxford. (Due to location applicants should have own transport)
- ★ RELOCATION expenses will be negotiable
- ★ Salary to £5500

REF. 1678

## ANALYST PROGRAMMER

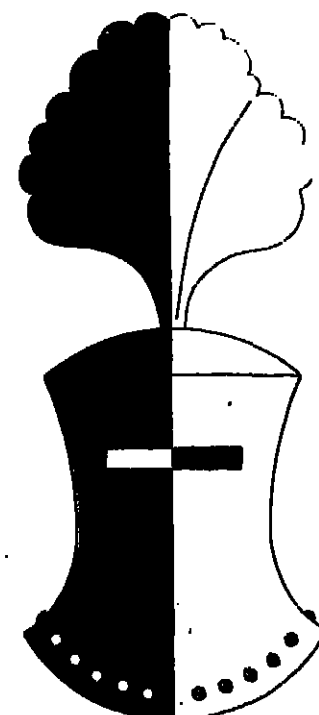
WILTSHIRE

Our client, a major preservation society based in rural Wiltshire have vacancies for analyst programmers with at least 18 months' RPGII experience. They are involved at present in taking over all major systems from their head office and have their development work planned for the next 5 years. Co. offers

- ★ Variety of exciting new development work
- ★ BEAUTIFUL rural surroundings with very reasonable house prices
- ★ Generous RELOCATION assistance
- ★ Salary £5000

REF. 1637

Computing Services Association



## CONTRACT MIDLANDS & N. ENGLAND

PROG DEC 10 FORTRAN  
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FOR DETAILS OF THESE AND OTHER CONTRACTS, PLEASE CONTACT MR. PERRY BUTLER, 143-144 ROYAL EXCHANGE BUILDINGS, CROSS ST., MANCHESTER M2. TELEPHONE NO. 061-833 9341/3. MIDLANDS 021-236 1794 Extension 223

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George 3 or OS/VS1 - Salary range £4,000-£4,400 p.a. with valuable extra benefits.

When it comes to job satisfaction, it's worth talking to London Transport, the world's largest urban transport system. At our rapidly expanding Data Processing Department in Central London, we're looking for more experienced staff with at least an 18-month background in George 3 or OS/VS1 operation.

As well as a salary in the range of £4,000-£4,400 p.a., we can also offer other benefits:

- ★ FREE TRAVEL on London Transport services at all times.
- ★ Good holidays.
- ★ Subsidised staff restaurant.
- ★ Pension Scheme
- ★ Excellent sports facilities

You will also be given excellent training with good promotional prospects.

The installation currently comprises 2 ICL 1904s, 2 ICL 2804s, IBM 370/148 and IBM Series 1 computers, handling Batch Processing, Transaction Processing, Interactive Processing and On-Line Enquiry systems.

So if you have the experience and ability we're looking for, telephone the Senior Operations Controller now, on 01-637 9144, or write to The Staff Appointments and Development Officer, 55 Broadway, London SW1H 0BD, quoting reference 916/C.

**LONDON TRANSPORT**

## SYSTEMS PROGRAMMING

Yorkshire to £6500

DOS/VS  
CICS  
DL/I

Is this you?

Our client will offer, depending on experience and qualifications, up to £6500, and relocation where appropriate.

Write or telephone Ivor Norton, quoting reference I/C/78069, in confidence, at the address below.

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As Europe's largest suppliers of contract computer personnel to Holland, we require an additional sales person for our Amsterdam office. The successful applicant will probably have some sales or marketing experience. However, consideration will be given to applicants with good computer experience, who have knowledge of Holland. He or she will be self-motivated and keen to travel. Remuneration will include generous guaranteed basic income, and a substantial commission. We will expect a successful person to earn in the range of £15-£25,000 p.a. A car will be supplied.

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The Directors  
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27 Noel St, London W1  
Telephone 01-734 0152 (24 hours)



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Enquiries and requests for application forms should be addressed to the Secretary of the Graduate School at LSE, Houghton Street, London WC2A 9AT. The deadline for receipt of completed application forms and academic references is 15th September.

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DEPARTMENT OF MATHEMATICS

SENIOR PROGRAMMER  
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PROGRAMMER  
Grade 11b/2 (1 post)  
Qualified, experienced programmer to work with a team providing support to the Polytechnic teaching, research and administrative users of the Computer. 1903A/B4C6; tape driver is installed; the majority user work is COBOL FORTRAN and PLAN together with packages of various types.

Salary scales:  
11b/2 £3,633-£4,320 p.a.  
11b/2 £2,244-£3,358 p.a.  
11b/2 £1,122-£1,679 p.a.  
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# Computer Operations Production Manager

**Science Group**



# COMPUTER WEEKLY

\*Gross annual salary married discipline DD 88,082 (post A); DD 80,300 (post B).  
Candidates who are nationals of one of the NATO countries are invited to send full  
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your kind of people.

*Journal of Management Studies*, 19(1), 67-80.



POSITION	SALARY	EMPLOYER	LOCATION	HARDWARE ENVIRONMENT	SOME OF THE QUALIFICATIONS	REF. NO.
PL/1/COBOL Analyst/Programmers	to £6,000 +	Bureau/Manufacture	N. London Berks.	IBM	Ambitious programmers with 2 years' + experience required to work on varied commercial projects in an on-line environment.	31/1
Analyst/ Technical Support Staff	to £6,000 +	Manufacturer	Berks. + travel	Minis	Computer professionals with client liaison experience required to join this successful organisation to provide technical/software support to clients.	31/2
Programmers	to £6,000	Finance	Berks.	ICL + Minis	Programmers with 2 years' + commercial experience and preferably COBOL required to develop both batch and terminal systems for this growing organisation.	31/3
RPG II Programmers	to £6,000 + expenses	Software House	London & Home Counties	IBM	Urgently required. System 3, 32, 34. RPG II programmers to work on development projects for this well established organisation.	31/4
Programmers and Graduates	to £5,500	Engineering Consultancy	Surrey	Any	Excellent opportunities for people with some FORTRAN experience to develop engineering applications and software. Training facilities are provided.	31/5
Analyst/Programmers	to £12,000 Tax free + Accom. ++	Construction Industry	Saudi Arabia	IBM DOS	Analyst/programmers with 3 years' + experience of RPG II/COBOL urgently required to work for this international organisation in their Middle East Headquarters.	31/6
Software Specialists	to £7,000	Manufacturer	Berks.	Minis/Micros	D.P. professionals with 3 years' + experience of commercial software systems and knowledge of COBOL/RPG II and Assembler required to work in a stimulating environment.	31/7
Systems Analysts	to £7,000	Transport Industry	London	IBM	Analysts with experience of major commercial systems required to work in a DB/TP environment. Excellent career prospects.	31/8
Systems/ Customer Support	to £8,000	Manufacturer	London EC1	Small business systems	Excellent opportunity for people with experience of RPG II and client liaison to join a new team covering all aspects of technical support.	31/9
Scientific/ Engineering Programmers	A1 neg.	Bureau/ Consultancy	Holland	Minis	1 year + contracts available to scientific/technical people with 3 years' + experience on preferably DB, WP or DEC machines to work in an engineering consultancy environment.	31/10
Analysts & Programmers	£6,000 + Mortgage	Banking	London EC3	IBM DOS	This rapidly expanding organisation requires systems and programming staff with 2 years' + relevant experience to assist in the development of on-line/real time systems.	31/11
Technical/ Scientific Programmers	to £7,000 +	Technical Consultancy	London & SE	Minis/Micros	Varied and exciting development projects available for scientific/technical programmers with 2 years' + Assembler/Fortran/CORAL experience.	31/12
Programmers/ Designers	to £6,000	Chemical Industry	Middx.	IBM OS	Programmers with sound COBOL experience and team leadership experience required to develop TP & DB systems in this expanding organisation.	31/13
Analyst/Programmers/Analysts	to £7,000	Software House	London W1	Minis	Staff urgently required with commercial experience in minis or on-line systems and communications software. Excellent career prospects.	31/14
Programmers/Analysts	to £8,000 +	Banking Services	City	PDP	Excellent opportunities for programmers with a sound DP background to develop real time communications systems in a banking environment.	31/15
Analyst/Programmers	to £8,000 +	Software House	London + Travel	Any	Analyst/programmers with 3 years' + experience required to join this progressive company to work on a wide variety of commercial and scientific projects.	31/16
CAD/CAM Graphics/Communication Staff	c. 60,000 guilders +	Service Industry	Holland based	Minis/Micros	Excellent career prospects for the right candidates to provide consultancy/programming services throughout Europe.	31/17
COBOL Programmers	to £6,600 +	Software House	Surrey Overseas	Any mainframe	This rapidly expanding organisation urgently requires good COBOL programmers with preferably knowledge of 2 mainframes to develop systems within the UK and Europe.	31/18
Systems Analysts	to £8,000 +	Manufacturing/Distribution	W. London	IBM & Minis	First Class opportunity for analysts with 6 months' + experience to develop commercial systems in a challenging environment.	31/19
COBOL Programmers	to £6,000	Insurance	London EC	Any	A1 opportunity for COBOL programmers with 1 year + experience to work on batch/real time projects within this progressive company.	31/20
Analyst/Programmers & Programmers	to £6,300 + benefits	Manufacturing & Marketing	N. Surrey	Minis & IBM	Experienced analyst/programmers and programmers required to work in this exciting environment on a wide variety of on-line and batch applications.	31/21
Junior & Senior Programmers	to £6,000	Electronics Industry	Surrey	Minis/Mainframe	Excellent opportunity for ambitious people at all levels to work on advanced technical/scientific applications. Graduates also required.	31/22
Software Designers/Programmers	to £7,000	Publishing	London	PDP	If you have 2 years' + experience in real time communications software or microcomputers, there are excellent opportunities within this company's computer department.	31/23



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1. You are likely to be currently working for a major bank in the role of Systems Analyst/Project Leader, and be able to provide evidence of your experience in designing at least one main line banking system from the feasibility stage through to implementation.
2. You will possess sound programming experience, preferably on IBM hardware under DOS/VS.
3. The ability to communicate well with user management at all levels.

An Analyst who has worked as part of a team in developing banking applications will be considered. This is a challenging opportunity and as such only applicants who possess the desire to progress their careers within a very professional environment should apply.

Reference will be given to candidates who are under 30 years of age, married and without children of school age.

WRITE OR TELEPHONE US NOW AS WE WISH TO MAKE EARLY ARRANGEMENTS FOR YOU TO ATTEND AN INTERVIEW, WHICH CAN TAKE PLACE EITHER IN LONDON OR THE SOUTH

### COLAISTE NA HOLLSCOLLE CORCAIGH UNIVERSITY COLLEGE, CORK

#### INFORMATION & DOCUMENTATION OFFICER

Applications for the above post are invited from Technical authors or Systems Analysts with experience of documentation systems and standards.

The Computer Bureau provides a comprehensive computer service for academic and administrative departments within the College. Interactive computing facilities are supported by an IBM 370/158 Computer.

The Information and Documentation Officer will be responsible for all aspects of documentation systems and standards. This includes the establishment and control of a DP Systems Library, the preparation of viewletters and reports for internal and external distribution.

Preference will be given to candidates who have had previous experience in the design, implementation and maintenance of documentation systems in a higher institution.

The successful candidate may be offered a fixed-term contract or a permanent position.

**SALARY:** Depending on qualifications and experience, will be within the scales:

€6897 x 6 - €8784 (Grade 6)  
or €4747 x 8 - €5553 (Grade 8)

Further particulars and application form may be obtained from the Establishment Officer, University College, Cork, Ireland.

**CLOSING DATE** for completed applications **Wednesday, August 30, 1978.**

### AUSTRALIA SYSTEMS ANALYST

We are the service company for the Australian banks national credit card scheme - "Bankcard".

Our Systems Manager is visiting Sydney during the second half of September. He would be interested to meet Systems Analysts who are considering emigrating to Australia. (Our offices are in the Sydney area.)

If you have spent more than 5 years in EBR with some proven Systems Analysts experience with batch applications, please send a resume to reach me by the end of August.

We operate two IBM 370 equipment in both batch and real-time modes. Network applications are front-ended through PDP minis.

We shall negotiate attractive salaries and benefits for the right applicants.

Please send resumes to:

Alan Smith, Senior Systems Analyst  
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P.O. Box 79  
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## COMPUTER RECRUITMENT DIVISION

### OPERATORS

**SHIFT LEADER**  
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For a South London Bureau offering varied work, excellent career prospects and a generous benefits package. Ideal if you have over ten years' experience. Ref. 344.

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You must have 2 years' experience for the fast paced East London based manufacturing. Outstanding prospects and perks that include 4 weeks' holiday and a staff discount. Ref. 346.

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Excellent prospects await you in Central London. You should have a knowledge of PDP II. Perks include 4 weeks' holiday and cheap meals. Ref. 178.

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**PROGRAMMER/ANALYST**  
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Based in Kings Cross, this company operates a PDP system, mainly on-line with some batch processing. Career prospects are second to none and perks include five weeks' holiday, pension scheme, LVO and a subsidised canteen. Ref. 352.

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You need a minimum of one year's experience for either job, gained in a commercial environment, and preferably have a knowledge of IBM. The programming position offers the chance to learn PDP II together with on-line and database techniques. Slough based. Ref. 353.

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For a software house. Home Counties based, but offering the chance to work in Europe. You should have a background in either Communications, Micro Processors, Military Systems, Minis or Basic Software. Prospects are unlimited with benefits to match. Ref. 358.

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£4500

For a West London installation consisting of a 98K System - 3 Model 12, soon to be increased. The job is with a major international company offering outstanding prospects and perks. Ref. 354.

**SENIOR PRO-GRAMMERS**  
£4850 +

The job is with a major Hertfordshire/Essex based Retailer, currently installing a new Data communication network system based on PDP 11. You should have around 3 years' experience (any language) and be looking for the chance to learn COBOL or Basic +2. Benefits include relocation expenses where necessary. Ref. 355.

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Please write or phone: Personnel Department, Parvate Gütermann Ltd., 22 Wadsworth Road, Greenford, Middlesex. Tel. 01-898 6000.

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according to  
experience

Our clients, a medium sized Software House well respected in the industry and having particular expertise in the field of manufacturing systems, require a person to head their systems team taking projects from feasibility to implementation. The role will include a large amount of contact with the user and personality and the ability to negotiate from a technical point of view are vital.

Ideally the person should have come through a programming background and be able to take systems down to program specification level. The position will be largely concerned with overall systems and project control and proven experience in this area is expected.

We would regard this as an important step for a person who is ambitious and we think this could be your opportunity.

The environment they have is happy and secure. The company is expanding and your career is assured, especially for those people who like their talents to be recognised.

Telephone or write to us now so that immediate interviews can be arranged either in London or the South.

### UNIVERSITY OF ABERDEEN COMPUTING CENTRE PROGRAMMING ADVISER

The University has recently installed a large Honeywell dual processor 66/80 System supporting a large terminal network. The Centre has a major interest in Data Base Management which includes the support of applications using IDS/II, software development and research.

Applications are invited for the post of Programming Adviser in the Applications Section which is concerned with assisting users and developing packages. Candidates should normally possess an honours degree in Science or Mathematics and have computing experience in one of the following areas: data management, data analysis, text processing.

Salary on the scale £3,860-£8,178 per annum (Grade 1A-Other Related Staff) with appropriate processing.

Further particulars from the Secretary, The University, Aberdeen, with whom applications (Two copies) should be lodged by September 1, 1978.

### UNIVERSITY OF BIRMINGHAM FACULTY OF COMMERCE AND SOCIAL SCIENCE RESEARCH FELLOW (RANGE 1A) IN COMPUTING

Applications are invited for an S.S.R.C. supported Research Fellowship (Range 1A) in computing in the Department of Economics for appointment from October 1, 1978.

The Research Fellow will be concerned with the development of software including programmes for algebraic manipulation on a CDC 7600 Candidates should, therefore, be well qualified in computer science and have a good knowledge of numerical analysis.

The appointment will be for 18 months from October 1, 1978. Salary on the first five points of the Research Fellow scale (£3860-£4601) plus superannuation.

Further particulars and application form may be obtained from H. R. Clayton, Senior Assistant Registrar, The Registry, The University, Canterbury CT2 7NZ. Telephone Canterbury 68572. Ext. 283; quoting reference A26/78. The closing date is 31 August, 1978.

# Data Communications

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experience of selling or supporting the sales of relevant data communications or terminal products. They must be enthusiastic about the rapidly-changing field of data communications, highly self-sufficient, and mobile.

We offer an excellent basic salary together with commission which will take the annual earnings to over £10,000. A car and competitive benefits will be provided.

Write, or telephone for an application form, to: W D Barrow, Raytheon Cossor Data Systems, The Pinnacles, Harlow, Essex CM19 5BB. Telephone (0279) 26862.

## Raytheon Cossor Data Systems

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Data Processing Department

Occidental, one of the most progressive and successful oil companies in the North Sea, have a small, highly-qualified team of Computer Specialists, who play a significant role in providing technical and commercial data processing services to the entire operation.

We are looking for an experienced person to operate two identical Remote Batch Computer Terminals. The decimating and distribution of printer output, the ordering and receiving of computer terminal supplies, and the logging of machine failures and the co-ordinating of engineering repairs are also included as the main areas of responsibility in this vital data processing position.

It is desirable that the candidates, male or female, are familiar

with IBM OS/VS1 remote entry sub-system commands, and are willing to work occasional overtime.

A competitive salary is offered, and fringe benefits will include free life insurance, contributory pension scheme, generous luncheon allowance, 4 weeks' holiday and local public holidays.

If you have the necessary qualifications and experience and are seeking a challenging and rewarding career with a forward-looking Company, please apply in writing, or telephone for application form to Mrs. Linda Roob, Employee Relations Department, Occidental Petroleum, Caledonia Limited, 127 Connewayend, Aberdeen AB9 3TP.

Tel: Aberdeen 574588.

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### COMPETENT MINI COMPUTER PROGRAMMERS

to join an expanding team working on varied high technology projects including N.A.S.A. Space Shuttle Programme.

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Telephone Derby 871348

### Programmer

Gresham Lion Limited is a well-established name in electronics engineering, with an extensive range of products varying from small O.E.M. units to complex defence systems for the Ministry of Defence.

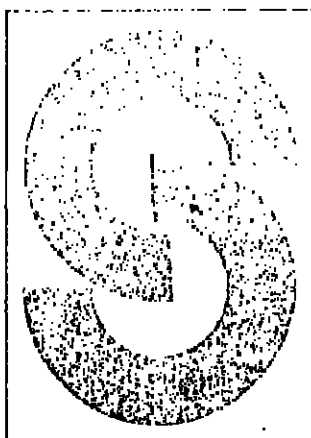
We are now looking for someone in their early 20's with experience of PDP-11 machines, using Fortran IV and real-time operating systems, preferably RSX-11M.

The successful candidate can expect to earn a good salary with numerous fringe benefits that usually apply to a successful company.

Applications should be forwarded to: R. G. Hancock, Personnel Manager, Gresham Lion Limited, Gresham House, Twickenham Road, Feltham, Middlesex. Tel. 01-894 5511

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COMPUTING LIMITED  
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★ Large company benefits.

— subsidiary of Chubb & Sons Ltd., suppliers of locks, safes and security systems, with a group turnover exceeding £150 million.

★ At least one senior appointment will involve extensive travel in Europe and possibly North America.

If you have hardware or software sales experience OR you have a more technical background but would welcome the opportunity to move into the sales environment then contact

**Ken Jackson**  
Safe Computing Ltd.  
20 Freeschool Lane  
Leicester, LE1 4FY  
Telephone: Leicester (0553) 29321

### ANALYST/ PROGRAMMERS

Our associated company Amphenol-Tuchel Electronics G M B H requires Analyst/Programmers to work at their Heilbronn plant.

Around 3 years COBOL experience required (preferably on Honeywell 64) in a manufacturing environment. Spoken German is desirable but is not an essential requirement.

Heilbronn is situated on the River Neckar, in pleasant countryside, near Stuttgart.

U.K. interviews will be conducted during the second week in September.

Please apply with full career details to:  
The Secretary, Amphenol Limited  
Thanet Way  
Whitstable, Kent CT5 3JF

**AMPHENOL** Connect up with Amphenol

### Senior Data Processing Officer—Teleprocessing

Salary Scale £8773-£7223 per annum  
Applications are invited from suitably qualified persons for the above position. At its London Headquarters, the Authority operates two IBM 370/148 Computers connected to a large (150 terminal) teleprocessing network covering the principal centres of population in the Region.

Interesting developments in this network are in hand involving the evaluation of IBM's Series/1 and similar equipment.

The software environment is VM with DOS/VS, OS/VS1 and CMS. The teleprocessing monitor is SHADOW with TP programs written in IBM Assembler. Batch work is handled almost entirely by Informatics MARK IV file management system. The successful candidate will be responsible for the maintenance and further development of the TWA SHADOW teleprocessing network. He or she must have been involved in depth with the implementation of at least one major teleprocessing system and be fully conversant with the characteristics of IBM's communication hardware.

This post is open to male and female applicants 24 days holiday (minimum) per annum.

Pension scheme — Interchange arrangements.  
Please send your application, giving full details of age, educational qualifications, previous experience and present post quoting reference 78/84 CW or not later than August 14 to

Lawrence O. Wild  
C. Eng., F.I.C.E., F.I. Mech.E., F.I.W.E.S.  
Divisional Manager  
Room 650  
Thames Water Authority  
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**Thames Water**

UNIVERSITY OF  
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NORTHUMBRIAN  
UNIVERSITIES MULTIPLE  
ACCESS COMPUTER

### TEMPORARY PROGRAMMING ADVISER

Applications are invited from graduates to join a small group within the NUMAC computing service concerned with advising, teaching and providing documentation on the use of computer programs of a technical nature. Applicants should have a good knowledge of computer languages and an understanding of the needs of research workers and students in the social sciences. The Computing Laboratory has excellent facilities including powerful IBM hardware with interactive capability and a large repertoire of library programs.

The appointment will be for one year and will be made on one of the following scales according to age, qualifications and experience: Range 1A: £3,680-£5,175 or Range 1B: £5,730-£7,000 per annum. Membership of the appropriate University superannuation scheme will be required.

Further particulars may be obtained from the Registrar, The University of Kingston, London, SW20 7AL, or from the Computing Laboratory, University of Newcastle upon Tyne, with whom applications (3 copies) together with the names and addresses of three referees should be lodged not later than 15th August 1978. Please quote reference CW.

### The British Library HEAD OF SYSTEMS DEVELOPMENT Bibliographical Services Division

The Division maintains an extensive range of services to the library and in the information community in the UK and overseas. It is currently developing its own software, MERLIN, which is a total database management system, based on a new range of ICL 2900 equipment.

The successful candidate's responsibilities will include the planning, organisation and day-to-day control of systems and programming development; project planning in conjunction with user departments; arranging visits, lectures and seminars; and ensuring that proposed enhancements to British Library software are technically and financially viable.

Candidates, aged at least 28, must have a sound knowledge of, and experience in, at least one of the following: large scale data-base systems, communications, software, bibliographical on-line and batch systems and new range ICL 2900 computers.

Inner London starting salary, as Assistant Keeper First Class, will be within the range £5855 - £8820. Non-contributory pension scheme.

For further details and an application form (to be returned by 24th August, 1978) write to:

Civil Service Commission, Alencon Link,  
Basingstoke, Hants RG21 1JB, or  
telephone Basingstoke (0256) 88551  
(answering service operates outside office  
hours). Please quote ref. G(37)382.



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Haji Abdullah Alireza & Co. Ltd., Jeddah, has the following openings for its new Data Centre:

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Salary tax free — according to qualifications and experience. Only 5% social security.

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Candidates with good experience in NCR 8250 and COBOL will be given priority.

For interview contact with C.V.:

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If you can supply the experience, and

of course the ability, we can supply the jobs with the kind of salaries you are worth.

We do not have the space here to list the scores of opportunities we have on our books but whether you have been working for twelve months or twelve years we would like to hear from you.

And we think you will like what we have to say in return.

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## TOP EUROPEAN COMPUTER MANUFACTURER

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Successful candidates should desirably have the following attributes:

- ★ At least 2 years' experience in selling of computer hardware, software or bureau services.
- ★ A desire to sell in a new business environment
- ★ Ability to communicate with top level management
- ★ Ambition and self-motivation

Not only does our Client offer an excellent basic package which could be as high as £15,000 (commission is payable over and above the guarantee), but there is also a professional management structure with a well designed career path. The normal benefits attributed to a major organisation together with a very generous car allowance.

Interested applicants should contact Roy Highfield and interviews will be arranged as soon as possible.

Ref. CW 18/1

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# Hutton

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## THE SALES BIT

### More than one way of making a point

WE are all at risk to the vagaries of inter-person communications. We are all emotional beings despite the exterior we present to the world. We are as if in a post-box, looking out through the slit, insecure and secretive, needing to be liked and wanting to be right.

When people communicate to us by voice or by letter we unconsciously carry out our own interpretation upon it which varies in extremes, depending on our emotional state at the time. The same words can veer from pleasing to offensive, depending on our state of mind. It is so easy to "get the wrong end of the stick" because of a gesture, a look, intonation or the semantics of language.

If this reflects the potential attitude of the recipient, then there is obviously some value in the other party considering the possible effect of a communication, before it is transmitted. There is always more than one way of making any statement; a point can always be made without causing offence.

From the salesman's point of view, it is essential to anticipate the effect of every communication, particularly when using the telephone. There are many situations where it is important for him not to say exactly what he thinks because to do so would be destructive.

It is often the salesman's best strategy to make a point against himself when he feels like making one against his client. The responses to "I don't understand" could be many.

1. "I'll go through it again."

2. "It's quite simple really."

3. "You weren't listening."

4. "What! All of it?"

When the salesman turns it against himself and says something like "I'm sorry, I didn't put it as clearly as I should have," he makes a real contribution towards developing an empathetic environment for negotiation.

Take another example.

"Our payroll is unique."

1. "No it isn't."

2. "That's what they all say."

3. "What makes you think that?"

4. "We could always bend the package for you."

To contradict is destructive and unnecessary. It is far better for the salesman to agree, then qualify the statement. "I imagine it is rather complex; but if we could utilise some of our standard program modules for tax tables and so on, it would reduce system costs."

One often sees the inconsiderate use of language at work in the communications between management and subordinates.

"You have failed!" is so much more destructive than "You have not enjoyed the success we know you are capable of." The same thing really, only different; except that one demotivates, the other challenges.

We had an excellent candidate in the office the other day I have known for years as a most effective salesman. He asked us to find him a new job, despite his enthusiasm for his company and its product, simply because, after many years of over-performance, his manager told him he had failed. Their loss is someone else's gain, simply as a result of someone saying exactly what they thought at the time without considering its truth in the context of the past performance and its emotional effect on the recipient.

This week's tip. Do not engage mouth before switching on brain.

TRADER

### Control standard

FIRST of a new series of standards for use in the evaluation of industrial process control instrumentation, has been published by the British Standards Institution. Entitled BS 5558, *Methods of evaluating the performance of controllers with analogue signals for use in industrial process control*, it will enable manufacturers and users to assess their equipment and express the results in a consistent and internationally acceptable manner. BS 5558 may be obtained from BSI Sales Department, 101 Pentonville Road, London N1 9ND. Price £7.80.

### Distributor

CACHE buffer memory systems, made by Fabri-Tek for the PDP-11, are now to be distributed by Billing Machines Ltd, under the terms of a recently signed agreement. BML has been handling a range of PDP-11 peripherals and peripheral sub-systems for the past five years.

### Sticky labels

CONTINUOUS self-adhesive labels for use with computers, are now being manufactured by Stampton Labels of Whaley Bridge, Stockport. The firm plans to have a range of standard size labels always in stock.

### Prime offices

NEW headquarters have been set up by Prime Computer in the UK. Its address is Prime Computer (UK) Ltd, The Hounslow Centre, Lampton Road, Hounslow, TW3 1JB. Tel: 01-872 8241.

THE former Stanford Research Institute, now called SRI International, has moved its London office to 5th Floor, 24 Buckingham Gate, SW1E 6LB. The California-based consultancy's main European office remains at 12/16 Addison Road, Croydon.

### Puzzle answer

THE first two sequences are digital, and chronological respectively. ATG, CLVSSCAP gives the 12 Zodiac Signs in correct astrological order: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius, Pisces.